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MAINE DEPARTMENT OF SEA AND SHORE FISHERIES

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The Lookout

Diversified Fishing

Harvey R. Bullis, Jr., Bureau of Commercial Fisheries Exploration and Gear Research, recently told the Gulf States Marine Fisheries Commission that the number of Gulf of Mexico shrimp boats could stay large by diversifying operations.

"For diversification ventures to succeed", Bullis said, "a good deal depends on the experience and caliber of personnel, condition of vessels, required operating capital and market conditions. A large number of fisheries could be pursued on an off-season basis that would increase the total earnings of a vessel."

"The industrial fishery in the Gulf has demonstrated that shrimpers have high adaptability for trawling scrap fish," Bullis continued. "Purse seining can also be conducted from the trawlers. Experiments have indicated a good potential for winter scrap fishing with midwater trawls. Other possibilities include lamprae net and night light trap fishing.

"So far, the industrial fishery has been confined to shallow water, and within this restricted area the maximum catch has not been reached. Information indicates a large potential in the 20 to 100-fathom range.

"Exploratory information on hand indicates a large, untapped stock of pelagic fishes which have industrial potential, and many which may provide food fish. The most encouraging prospect is the potential for developing the sardine fishery which would place the value of catches sufficiently high to encourage the switch.

What little is known of clam and scallop potential in the Gulf is encouraging, Bullis declared. "Most shrimp trawlers would make excellent scallop dredge boats. Only smaller draft trawlers could be used successfully as clam dredgers. The cost of conversion is relatively low except for such specialized applications as hydraulic jet clam dredges."

Bullis also stated that the few trawlers that have tried tuna long-lining have shown high catch rates and there is a likelihood that efforts will be increased to establish a long-lining fishery.

Many fishermen, he said, conduct snapper handlining during periods of low shrimp production. "This could be expanded at virtually no converting cost. Recent developments indicate trap fishing for snapper from shrimp trawlers. Another possibility for diversification is shark fishing."

NATIONAL FISHERMAN

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CONTENTS

Rack Oyster Culture Has Unique Versatility	7
Loads Imposed by Fishing Gear Affects Towing	8
California's New Marine Resources Operations	9
Purse Seiner Tuna Catches Spurt Ahead	10
Ask More Marketing Emphasis by Saltonstall-Kennedy Funds	11
Pacific Coast Tuna Industry Development is Outlined	12
Easy Method to Open Scallops Key to New Florida Fishery	13
Maine Seafoods Festival to Promote Lobsters, Sardines, Fish	15
Gloucester Lab Devoted to Long-Range Fishery Studies	29
Alabama to Lease Unused Bottoms for Oyster Farming	32
Outboard Conference Stresses Fishing Craft Modernization	34
Vessel Construction Subsidy Bill Enacted	39

REGIONS

North Atlantic	29
South Atlantic	13
Gulf of Mexico	32
Great Lakes	38
Pacific Coast	11

DEPARTMENTS

Fishery Progress	5
Equipment & Supply News	31
Boat Catches	33
Where-to-Buy Directory	40
Foreign Bailings	41
Boat & Gear Mart	42

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WAY
LETT

JULY, 1960

► Fishing Vessel Mortgage Insurance

A new program to insure mortgages given to assist in the construction, reconstruction, and reconditioning of fishing vessels is ready to start. It will operate similarly to the mortgage insurance on houses which is provided by the Federal Housing Administration.

Under this plan, the Department of Interior, through its Bureau of Commercial Fisheries, will insure the entire amount of the mortgage which may not exceed 75 percent of the cost of the vessel construction or reconditioning.

The mortgage cannot extend more than 15 years nor can it bear interest of more than 6 percent. The insurance premium will be one percent a year when the face amount of the mortgage represents more than 50 percent of the cost of the work, and 3.4 of one percent when it is 50 percent or less of the cost.

► Imports Down

Imports of edible fresh, frozen, and processed fish and shellfish into the United States during April 1960 decreased by 5.5 percent in quantity and 6.2 percent in value as compared with March 1960.

The decrease was due primarily to substantially lower imports of frozen and canned albacore and other tuna and, to a lesser degree, a decrease in the imports of canned oysters.

Compared with April 1959, the imports in April this year were lower by 16.1 percent in quantity and 12.7 percent in value due to substantially lower imports of groundfish fillets, fresh and frozen salmon, canned salmon, frozen shrimp, and to a lesser extent, frozen albacore from Japan.

Shrimp (fresh, frozen, and dried) imports from all sources in April 1960 amounted to 7.7 million pounds showing a drop compared to 9.1 million pounds for the same month in 1959.

Imports for all shrimp for the January-April 1960 period amounted to 32.5 million pounds in comparison with 33.3 million pounds imported during the like 1959 period.

► Cooperative Research Training

Last month, the House passed over without prejudice S.1781, a bill to facilitate cooperation between the Federal Government, colleges and universities, the states, and private organizations for cooperative unit programs of research and education relating to fish and wildlife.

The bill would authorize the U.S. Fish and Wildlife Service and other agencies of the Department of the Interior to enter into cooperative agreements for conducting research, training, and demonstrational programs. The bill passed the Senate on May 4, 1960.

FISHERY PROGRESS

► Shrimp Industry Relief

A bill (S. 3639, Long) for the relief of the domestic shrimp industry through granting of a temporary quota measure to meet distressed conditions was introduced in the Senate last month and referred to the Committee on Finance.

► Pesticide Coordination

A bill (S. 3473, Magnuson) which provides for advance consultation with the Fish and Wildlife Service and with State wildlife agencies before beginning of any Federal program involving the use of pesticides or other chemicals designed for mass biological controls was introduced in the Senate recently.

► Fish Holdings Down

A total of 133.8 million pounds of fish and shellfish was held in cold storage on April 30, 1960. The holdings were 8.8 million pounds less than those on April 30 of last year and 9.1 million pounds less than those reported on the last day of March 1960. Holdings on April 30, 1960 were made up of 59 percent saltwater fish, 30 percent shellfish, 8 percent bait and animal food, and 3 percent fresh-water fish.

Holdings of salt-water fish on the last day of April 1960 amounted to 79.0 million pounds compared with 82.6 million pounds a year earlier, and 86.9 million pounds on March 31, 1960. The principal items held on the last day of the month were raw and other shrimp (28.7 million pounds), cod fillets (8.1 million pounds), haddock fillets (7.4 million pounds), ocean perch fillets (4.7 million pounds), and spiny lobster tails (4.3 million pounds).

► Commercial Fishing Stamps

A bill to provide a special series of postage stamps to be known as Commercial Fishing Industry Stamps was introduced in the Senate last month and referred to the Senate Committee on Post Office and Civil Service.

The purpose of the bill is to acquaint the people with the importance of the commercial fishing industry in the United States by having the Postmaster General issue, as early as practicable in the calendar year 1960, a special series of 4-cent postage stamps of an appropriate design, which would be known as Commercial Fishing Industry Stamps.

► Wholesale Price Index Up

The overall wholesale price index for edible fishery products (fresh frozen and canned) for May 1960 was 126.6 percent of the 1947-49 average up 2.7 percent from the preceding month.

This increase from April to May was due primarily to higher fresh haddock and fresh and frozen shrimp prices.

From May a year ago to this May the index increased 4.0 percent due mainly to higher prices for shucked oysters, frozen shrimp, and canned fish. The May 1960 index was the highest since March 1959 when it reached 128.2.

► Cooperative Marketing Act

The Subcommittee on Fisheries and Wildlife Conservation of the House Committee on Merchant Marine and Fisheries met recently to consider H. R. 2777 (McCormack), a bill to amend the Fisheries Cooperative Marketing Act.

The bill introduced in the House on January 19, 1959, provides that fishermen's cooperative shall not be subject to the provisions of the Anti-trust Act.

► Water Pollution Survey

The federal government has begun a nation-wide tabulation of the frequency and locations of fish killed by water pollution.

Leroy E. Burney, surgeon-general of the Public Health Service, said the project will assemble basic information needed to determine the effects of pollution on the nation's water resources.

Such information is necessary before pollution-abatement actions can be taken under federal law.

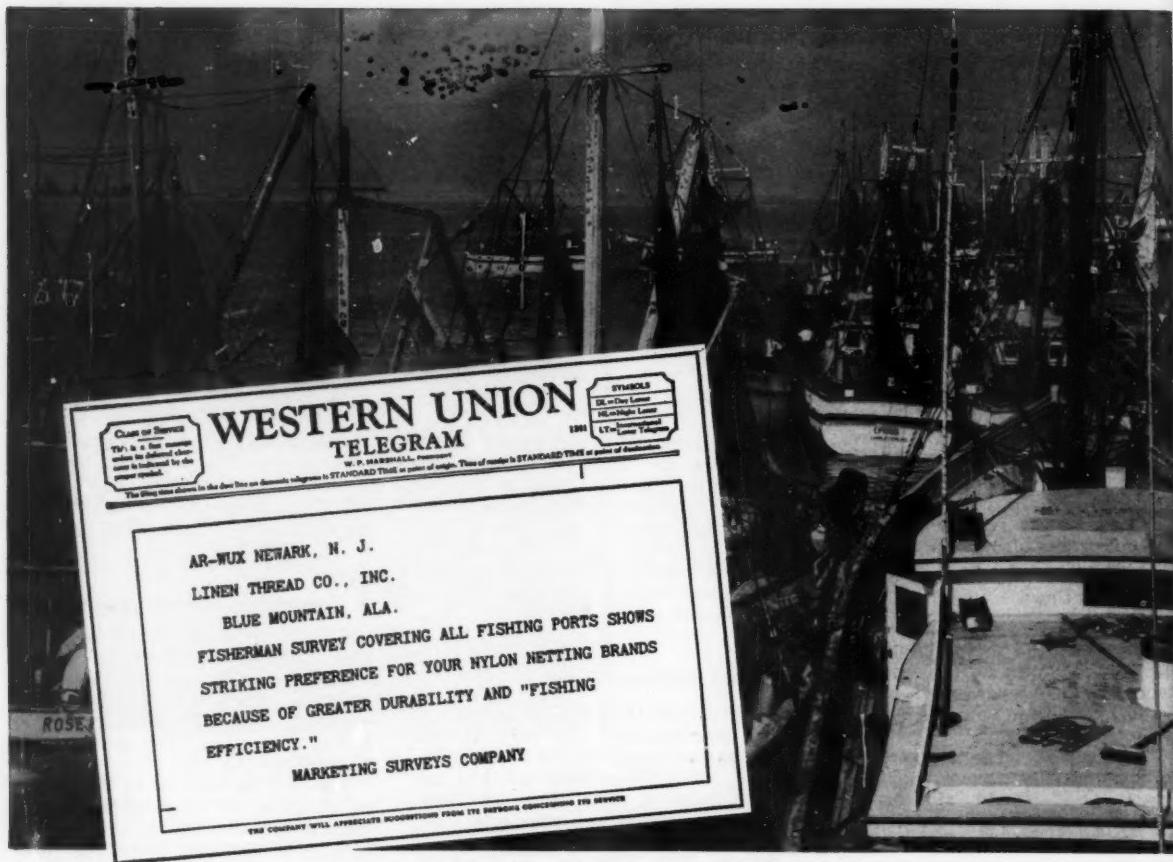
► World Court Rejected

The Senate recently surprisingly rejected an international agreement that would give the World Court jurisdiction over all disputes arising under the law-of-the-sea convention signed recently at Geneva.

The agreement failed to gain the necessary two-thirds vote for ratification. The roll call vote was 49 to 30 for the agreement, four short of the 53 needed.

The action came after the Senate ratified, 77 to 4, four other agreements as parts of the law-of-the-sea convention.

They were approved in a bloc along with a treaty covering international exchange of visual, auditory, and educational materials.



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Rack Oyster Culture Has Unique Versatility

Suspension system features doubled growth rate, easy harvesting, safety from predators, and adaptability

The Japanese system of collecting and growing oysters on racks has stirred up considerable interest in the United States because of the method's versatility and exceptional production rate. Of particular interest are the short growing period which produces oysters of commercial size in approximately ten months, the ready adaptability to growing areas, the protection of oysters against predators, and easier harvesting.

During a recent trip to Japan, David H. Wallace, Director, Oyster Institute of North America, observed that oyster cultural practices there are more advanced than on any of the coasts of the United States. The methods used to collect seed and then to grow them to commercial size are radically different from those used in this country and produce some phenomenal results.

Selects and standards are marketed from the Inland Sea area in 9 to 12 months after the larval oysters attach to shells put in the water for cultch. From 500 to 800 bushels are harvested from a bamboo raft 60 feet by 30 feet, Wallace reported.

In this process the entire water column is utilized from surface to bottom, even though few of the oysters are planted on the bottom itself. In one part of the Inland Sea with less than one third of the salt water area of the state of Maryland, 20,000,000 pounds of oyster meats are grown and harvested annually in this manner. The yield is about equal to that of the state of Virginia, leading oyster producing state in the U. S. A.

Government Biologists Work with Farmers

These are startling facts and are worthy of analysis, Wallace feels. In the Hiroshima area, one of the major reasons for success is the close working relationship between the state and federal biologists and the oyster farmers. This apparently is true in other parts of Japan as well. Since 50% of the commercial oyster production comes from the Inland Sea, these comments are pertinent.

Continuing, Wallace explained that cultivation of oysters is carried out off the bottom almost entirely. This is true for both seed and market production. Spawning and setting occurs in the summer months, mostly in July and August.

The oyster larvae are free "swimming" for about two weeks in much the same manner as the so-called Eastern oyster. At the end of the larval period, the baby oyster must attach itself to some hard object or die. Oyster, clam, and scallop shells are used for cultch to collect the spat.

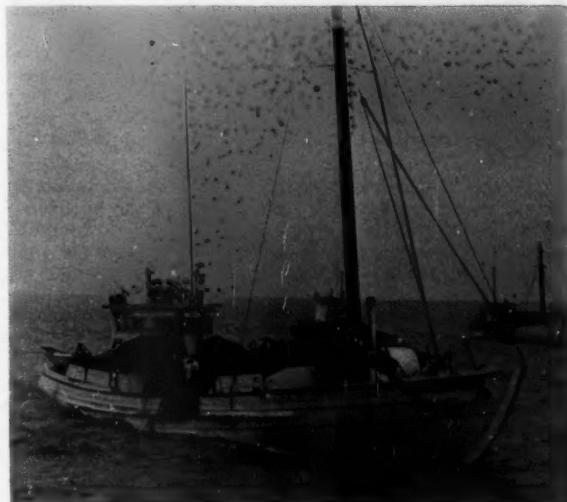
Timing Important for Successful Planting

The timing of planting cultch apparently is extremely important if the maximum strike per shell is to be obtained. The oystermen prepare their shells during the winter and spring so that the planting can be made in the shortest period of time.

Just prior to and during the spawning season, the state biologists make continuous observations on spawning and the quantities of larvae in the water, Wallace said. When the water conditions are right and the maximum quantity of larvae is present, the oystermen are advised to plant the cultch. This gives only a very short time but assures absolutely clean "cultch" for the larval attachment.

High setting grounds are quite limited compared to growing areas. The main seed area in Hiroshima is relatively small, possibly not more than 4 square miles. And yet the bulk of the oysters grown in the Inland Sea set in that area.

Year after year, as many as 5,000,000 bushels of oysters, commercial size yet only 10 months old, are taken from growing racks to the shucking houses in Japan ac-



OYSTER BOAT "JOHN C. PETERSON" owned by Harold Bickings of Bridgeton, N. J. is powered with a General Motors 240 hp. 6-110 engine. The 87' craft is equipped with Columbian cordage, Hudson American radiotelephone, and uses Socony-Mobil fuel and lubricating oils.

cording to a report by George M. Staples of Osprey Fisheries, Crisfield, Md. Many watermen in the U. S. feel this powerful and fast oyster culture method might well be used in areas such as Maryland's Chesapeake Bay.

As with traditional culture methods, the Japanese system starts with plain oyster shells. A hole is punched in the center of each shell and the shell is strung on a heavy steel wire, to form a "seed shell string", the Staples report continues. This string is then planted (hung horizontally on shallow water wooden racks or hung vertically from a raft in deep water) in a known oyster seed area during June.

Microscopic, swimming oyster larvae attach to these shells during late June and July and start to grow. In September, about 10-15 oyster spats can be seen to be growing on each piece of shell. At this time the "seed shells" are removed from the racks (or rafts) and wires and are strung on another 20-30 ft. wire with 8 in. bamboo spacers between each piece of seed shell. The new strings, called growing-strings are hung from large 50 ft. by 25 ft. wooden growing-rafts floated on wooden or steel, tar-painted drums.

Groups of growing rafts are moored in 25 to 35 ft. of water, in proven growing areas which have good protection against large storm waves. In March and April the raft grown oysters are 3 to 4 inches in length and are ready to enter the shucking house.

The fast culture method is known as "hanging or suspended culture" and may include a number of variations of the one described. Advantages of the fast system are (1) doubled growth rate and a crop produced in half the usual time; (2) any type of bottom or depth of water is suitable; (3) the oysters are easily harvested; (4) the crop is easy to identify as privately grown; (5) oysters are safe from crawling predators.

Hanging culture also has some obvious disadvantages such as: (1) rafts and racks may be hazards to boat navigation; (2) the rafts and racks may be subject to wave

(Continued on page 35)

Loads Imposed by Fishing Gear Affects Towing Performance of Trawlers

The essential criterion of a trawler is its towing performance, which is effected by the loads imposed upon the boat by the trawling gear. According to an English scientist, the loads vary with vessel speed and a large trawler may not use all the available horsepower when towing, while a smaller one sometimes will. The loads may be measured by the drag on the trawling gear and by the horsepower developed by the engine.

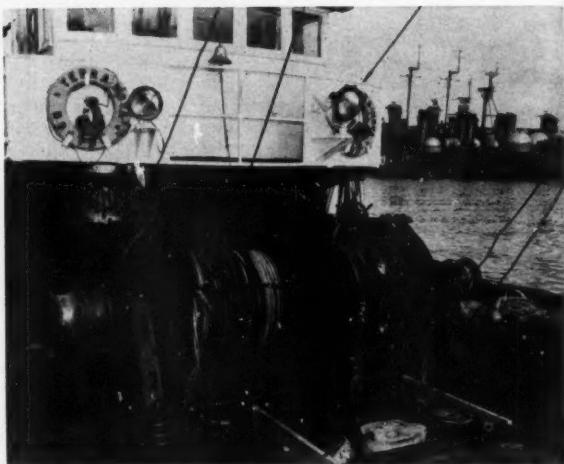
W. Dickson, senior scientific officer, Marine Laboratory, Torry Station, Aberdeen, Scotland stated at the 2nd World Fishing Boat Congress that a knowledge of the performance of modern fishing gear, and the thrust, power and facilities required to handle it at the boat, can not fail to provide more rational background for the design of fishing craft and the planning of fishing fleets. Presently, there is little information available on towing performances, Dickson said.

After a series of tests were made on two trawlers of very different size, Dickson submitted his report (excerpts of which follow) to the Fishing Boat Congress in an attempt to provide additional information on towing performance particularly between the extremes of full speed and dead stop.

Tests Made on Research Vessels Under Normal Conditions

The tests were made on two research vessels: *Explorer*, 183½ ft. lbp., powered by a 1,200 hp. triple expansion engine, and *Mara*, 73½ ft. lbp. powered by a Diesel engine developing 204 bhp. at 600 rpm. The tests were made as part of a general program on the design of fishing gear. The essential measurements were: the rpm. of the propeller, the speed of towing, the hp. developed by the engine, and the tension in the trawl warps together with records of their declination.

Measurements of towing load, towing speed and en-



600-fathom Bromfield trawl winch on 96' steel, Boston trawler "Terra Nova" owned by Herbert F. Greene and skippered by Capt. Tom Kelly. The winch is operated off the 420 hp. Fairbanks-Morse main engine through Vickers hydraulic controls.

gine power were required over a range of engine speeds. The procedure was to start at low rpm. towing in one direction and increasing the rpm. in steps. When the readings were complete, the rpm. were stepped up a little and the vessel brought about on the opposite course. Once there, rpm. were reduced to the topmost value of the former series and the measurements made in descending order.

The trials were all made during good weather, towing over even bottom in 87 fm. and with 200 fm. of warp out. The warp-to-depth ratio was the usual 3:1. The gear towed was a large Aberdeen trawl of 96 ft. headline length, with 15 fm. sweep wires between otterboards and net.

The engine speed at which *Explorer* normally tows is 90 rpm. On the one occasion when the engine speed was raised to 100 rpm. the vibration in the ship became considerable and the power transmitted by the shaft rose to 783 shp. There are several other points worth noting: First, under normal towing conditions only about half the available horsepower is being used. A factory ashore having half the plant idling for a considerable proportion of the working day would be a matter for some concern.

Secondly, as little as 20 percent of the available engine hp. is effectively used in pulling the trawling gear, and of that, between a third and a half is spent on the otterboards. Trawling therefore cannot be regarded as highly efficient from the mechanical point of view. The third point is the increase of towing load with speed is in fact not much more than proportional to the first power of the speed. This is presumably because of the part played by friction on the sea bottom. Finally, the 3:1 warp-to-depth ratio would mean declination of 19½° if the warp were straight, but there is an appreciable sag resulting from the heavy 3¼ in. circumference warp. The warp is straightened out somewhat with increased towing speed.

Effect of Warp Lengths

Tests were made to determine the effect of differences in warp-to-depth ratio since the 3:1 rule is not invariable. The details can be omitted but one or two points are relevant as they affect the loading on the ship: The warp ten-

(Continued on page 36)



62' SHRIMP TRAWLER "SHERRE EILEEN" recently delivered to R. E. Clegg, Clegg Shrimp Co., Inc., Port Lavaca, Tex. by Diesel Engine Sales, Inc., St. Augustine, Fla. She has a 6-71E General Motors Engine, 46 x 36 4-blade Federal propeller, and 3" Tobin Bronze shaft. Other equipment includes Petter-Diesel auxiliary engine, Bendix DR-7A depth recorder, Apelco AE375 radiotelephone, Metal Marine automatic pilot, Walter keel cooler, CMC Model SH-3R hoist, Columbian rope and her bottom is finished with Navicote paint.

FISHERIES RESEARCH, MANAGEMENT STRENGTHENED BY

California's New Marine Resources Operations

California's Marine Resources Operations (MRO), established less than three years ago, is conducting research on the marine resources of the state (fish, mollusks, crustaceans, etc.) and is carrying out management functions pertaining to those resources. A successful operation, which is directing the interests of commercial and sport fishermen into a single effort, MRO is based on California's Fish and Game Code.

Under the code, the state is required to expend necessary funds for biological research, field investigations, and the collection and diffusion of statistics and information pertaining to fisheries. MRO's area of endeavor covers the entire coast, but it is not involved with salmon and steelhead studies, which are handled by the Marine Resources Branch of the Fish and Game Department in Sacramento.

Supported by both commercial and sport fishermen, some phases of MRO's work may be directed primarily toward the interest of one group or the other, but the overall effect is that as the knowledge of the ocean and the life in it increases, both groups benefit.

1960-61 MRO Projects

The money requested for 1960-61 will support a number of research and management projects, including those conducted at Northern California headquarters at Stanford University, and in field laboratories at Eureka and Pacific Grove. The largest is the trawl and bottomfish investigation, where five men are working on one of the largest commercial fisheries in the State, the trawl fishery, which takes flatfish, rockfish and ocean shrimp.

The commercial fishing industry has been most cooperative over the years and one result is the good protective measures, based on scientific study. The fact that the beds of ocean shrimp were large enough to be of commercial significance was discovered by the department in the early 1950's. As a result, there is a moderately large fishery where none existed before, because of the research carried on by departmental biologists.

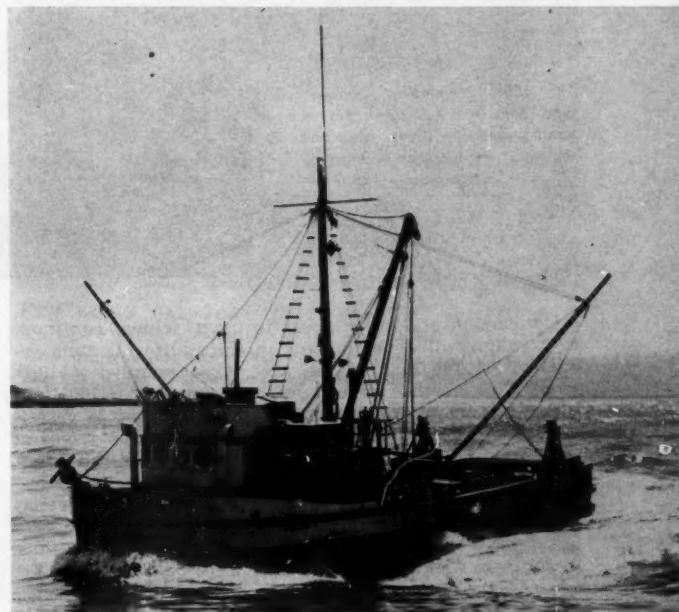
The 50-plus species of rockfish found in California are of significance both to sport and commercial fishermen. One man is spending full time studying the basic life history of the more important varieties.

Under the general heading of shellfish, four men are now working on oysters, crabs, abalone, and clams. Crab studies are concerned with investigating the basic biology of the species, and in checking on the effect of the fishery on the stock. Abalone work currently centers in Southern California and in the Morro Bay region and is concerned at present chiefly with studies of the pink abalone which is now the major source of commercial abalone man's supply.

The last project is the Northern California sportfish survey, which is being carried out with Dingell-Johnson funds. Here, a three-man crew is attempting to determine the amount of ocean sportfishing of all types in Northern California.

The other MRO programs are headquartered at the State Fisheries Laboratory in Los Angeles Harbor. One of the largest projects is the pelagic fish investigations, plus studying the sardine, and to some degree two mackerels, plus the anchovy and the squid. It is the program which is supported in part by Marine Research Committee funds, and forms part of a co-operative study with the University of California, Stanford University, the federal government and the California Academy of Sciences.

The tuna program, like the pelagic fish program, has a staff of nine, and has recently limited the field of endeavor to the albacore and the bluefin, dropping research work on yellowfin and skipjack. Making preseason sea surveys on albacore and predictions as to when and



The 65-foot drag boat "Admiral King" is owned by Byron Anderson and J. E. Johnson of Eureka, Cal. The craft, powered by a six-cylinder, 250 hp. Cummins Diesel, is pictured entering Humboldt Bay.

where the fish will occur, is to continue according to plans.

The barracuda-white seabass program, another three-man federal-aid project, is an attempt to find out the basic life history of these two fishes and to determine what measures, if any, need to be taken to insure continuation of the supply.

Fish Habitat Improvement

The most popular program started in recent years is that of habitat development. This three-man federal-aid effort is trying to improve habitat in the ocean by putting down streetcars, old car bodies and various other materials.

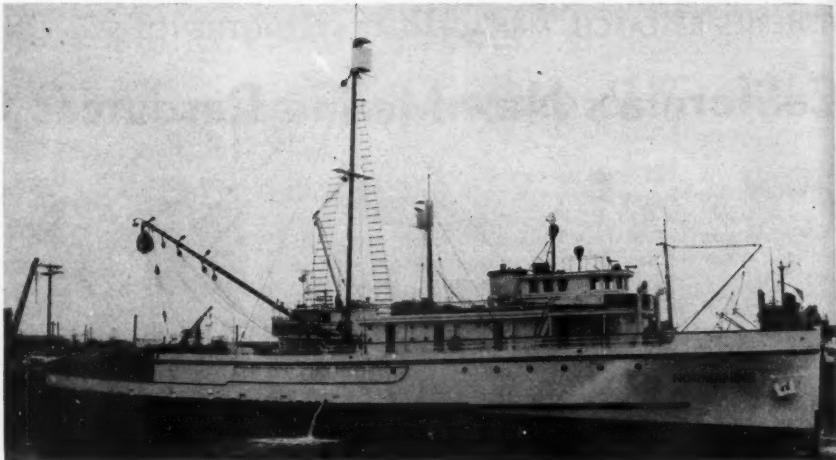
(Continued on page 37)



Capt. Ivo Kuselj of the California Fish & Game Department vessel "Alaska" tuning the Bendix Automatic Direction Finder recently installed on his boat.

Purse Seiner Tuna Catches Spurt Ahead

The 160' "Normandie", largest U.S. tuna boat was recently converted to seining. The San Diego, Cal., craft has replaced wooden fish-fuel tanks with fiberglass wells.



Conversion of tuna clippers to purse seiners continues to highlight all developments in the California tuna industry. At the end of the first three months of 1960, twenty converted seiners, with a total of 5,160 tons capacity were in operation, while an additional 33 vessels with a capacity of 10,165 tons were in various stages of conversion, bringing the total to 53 vessels with a capacity of 15,325 tons.

In addition, 41 regular tuna purse seiners with a capacity of 5,530 tons are now operating. Tuna clippers now fishing number 64 vessels with a capacity of 12,745 tons, in contrast with about 150 which were operating 2 years ago. At the present rate of conversions, it is expected that a purse seine fleet of 94 vessels, with a total capacity of 20,855 tons per trip, will be in operation out of San Pedro by mid-June as compared with 64 tuna clippers.

The largest tuna boat in the United States, San Diego's 160-foot *Normandie*, which had been bait fishing for 20 years, was converted recently to purse seining, at a cost of \$150,000, and has returned from her maiden voyage with a load of 360 tons. The catch was under the boat's capacity due to a few trial run changes. M. O. Medina, owner of the *Normandie* and bait-type tuna vessel owner for 49 years, sees a good future in converted tuna boats.

San Diego Purse Seine Boat Owners Association secretary, George Soares, expects the total catch by purse seiners this year to exceed the bait boats' catch for the first time.

Deliveries by tuna purse seiners exceeded those of the tuna clipper fleet during March alone by 6,385 tons or 40 percent. For the period January 1-March 31, 1960, deliveries by the purse seine fleet exceeded the tuna clipper catch by 7,100 tons or 56 percent.

During the 3-month period tuna clippers delivered 12,600 tons of tuna to Southern California canneries in 72 trips compared to 19,700 tons delivered by purse seiners (converted and regular) in 119 trips. Converted seiners alone accounted for 27 percent of all landings and 19 percent of trips completed during the first 3-months of 1960.

In an effort to keep ahead of Japanese competition, more and more boat owners in San Diego are giving the go-ahead for conversion of their boats to purse seining. The conversion takes about three months at a cost of \$100,000 to \$150,000. A large nylon net, plus a long mechanical boom and operating machinery replaces the old bait tanks and platforms used in the hook and pole method.

Purse seining has several advantages over bait fishing, primary of which is the elimination of the time consuming search for bait, as purse seining requires no bait. Also, because of the greater mechanization on purse seiners, manpower can be reduced in some instances by 10 or 12%.

Of the 123 tuna clippers operating out of San Diego today, 20 have been converted already, 27 are in various stages of conversion, and another 20 boat owners are seriously considering the conversion if they can arrange financing.

While several San Pedro boats have been purse seining for over 40 years, there have been improvements in fishing gear. Nylon twine has largely supplanted cotton webbing in the seines. Another factor which has made purse seining more feasible, especially for the large clippers, has been the development of a hydraulically-operated power block for hauling nets aboard. On the smaller boats, this has been done by hand, but it would be next to impossible on larger craft. The *Normandie*'s nylon net is 2,880 feet long and 282 feet wide, and can hold 120 tons of fish in one lift.

The *Normandie* is being used as a guinea pig for several experiments which may be significant in the tuna industry. Formerly the fish-fuel tanks on many bait boats were made of wood which had to be recaulked after every other trip. On the *Normandie* these wood tanks have been replaced by wells lined with quarter-inch fiberglass-reinforced plastic. Medina expects the tanks to last years instead of months.

The *Normandie* will carry an airplane to search for schools of fish, radio gear is provided for transmitting information back to the clipper from the plane's pilot.

Oregon To Study Albacore Migrations

An albacore tuna exploration cruise by biologists of the Oregon Fish Commission was begun recently, aboard the *Morning Star*, owned by W. M. Sandercock, Portland, and chartered by the commission for the cruise. Basic oceanographic data will be collected and the migration and distribution of albacore tuna will be studied.

The albacore reached a production peak of 22 million pounds in 1944, and some ten years later the catch fell to one-half million pounds. This decline is not a case of depletion, but rather due to migration of these fish. It is with this erratic behavior of these fish that Robert J. Ayres, commission biologist and director of the cruise, is concerned.

It is believed that the reasons for the fluctuations of albacore catches, varying from year to year, are due to ocean currents, water temperatures, or food supply, but actually little is understood or proved. Oregon State College department of oceanography, under the direction of Bruce Wyatt, in charge of field work, plans to send a biologist with the Oregon Commission's cruise as well as make studies of their own at the same time in a separate vessel.

PACIFIC COAST

Ask More Marketing Emphasis By Saltonstall-Kennedy Funds

Last month, the Southern California Fisheries Association Retailer Clinic Committee met with members of the Bureau of Commercial Fisheries, Donald Aska, Chief Marketing Division, Washington, D. C., Donald Johnson, Area Director, Terminal Island, and S. Ross Hatton, Marketing Specialist, Western Area.

Sections of the Saltonstall-Kennedy Act were read which provide that Saltonstall-Kennedy Funds collected under the customs laws on fishery products are to be used "(1) to promote the free flow of domestically produced fishery products in commerce by conducting a fishery educational service and fishery technological, biological and related research programs, (2) to develop and increase markets for fishery products of domestic origin, and (3) to conduct any biological, technological, or other research pertaining to American fisheries."

Following the reading of the above sections members of the Retailer Clinic Committee put these questions to the Bureau men. 1. Why was only \$23,000 of 1960 S-K funds allocated to California for the Marketing Division while \$305,000 was allocated for Sardine and Tuna Research? 2. Why is only 10% of S-K funds allocated at the National Level to the Marketing Division and 90% to biological, technological and other research projects? 3. Why are all California Members of the Advisory Committee on allocation of S-K funds from the Cannery Division of the industry?

In answer to the questions, the Bureau men suggested three vigorous actions be taken by the Fresh and Frozen Division of the fish industry: 1. Make views on allocation of S-K funds known to the Director of the Bureau of Commercial Fisheries; 2. Make views on allocation of S-K funds known to the Advisory Committee (Act to have a California man from the Marketing Division of the industry appointed to the Advisory Committee); and 3. Work closely with the Regional office of the Bureau.

Research Ship In San Francisco

The research vessel *Argo*, which was known as the *Snatch* until just before she left for Seattle, Wash. arrived in San Francisco, California recently.

The *Argo*, formerly the Navy salvage vessel *Snatch*, was converted by the Puget Sound Bridge & Dry Dock Co. into an oceanography research ship for the Scripps Institution of Oceanography.

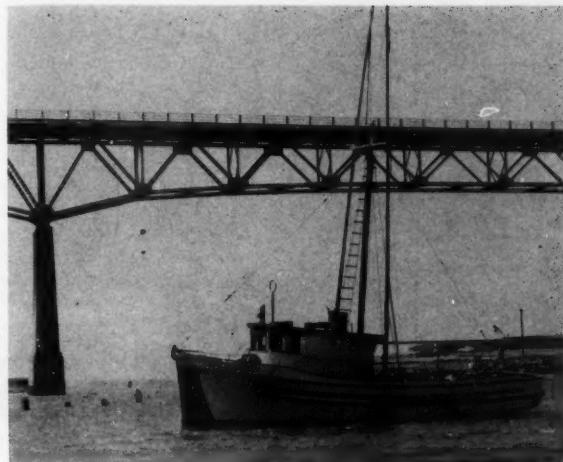
Striped Bass Eat Salmonids

Oregon Studies Show

It has been confirmed by the Fish Commission, after several weeks of investigation, that striped bass have a predilection for salmonids which could affect liberations and plans to increase the salmon run in the Coos River System.

Early this year, around 75,000 yearling silver salmon were marked and released from an eight-acre rearing pond on the East Fork of the Millicoma River approximately seven miles upstream from Allegany near Coos Bay. This is the first relatively large liberation in the state by the Fish Commission of silver salmon yearlings reared in natural habitat and is a phase of the plans to increase the Coos River salmon runs.

A short time later, Raymond Breuser, Fish Commission biologist, was shown the contents of the stomach of a 30-pound striped bass. In the stomach were 13 yearling salmon, 4 of which were positively determined by their markings to have been liberated from the Millicoma



FORT BRAGG, CAL. BOAT "CAPE OMMANEY" owned by E. B. Schnaubelt, Jr., is powered with a 165 hp. Cummins engine with 3:1 Twin Disc reduction gear. Completing the list of equipment is Apelco direction finder, Wood-Freeman automatic pilot, and Bendix depth-recorder.

Pond. It is probable, Breuser said, that all the fish in the stomach were from the same source, but because of partial digestion positive identification could not be made. Additional marked silver yearlings were discovered in other striped bass stomachs during the following week.

Considerable effort has been expended to determine the extent of predation. Two hundred and fifty-six stomachs turned in by commercial and sport fishermen contained 75 salmonids 3 to 10 inches in length. Many of the young salmon were believed to be from natural spawning in the upper Coos system.

The findings of this brief study definitely show that when young salmon are available they form an important part of the diet of a striped bass. Depending upon the numbers of stripers present in the Coos River estuary at critical migration times, plans for rebuilding the Coos River silver runs could receive a severe setback.

Wants Single Authority Over Oregon Salmon Industry

A pitch for the unified and single authority of Oregon over the salmon industry has been made by Tom Sandoz, executive of the Columbia River Packers association. Sandoz, a member of the Governor's Committee on Government Reorganization told that body that the Columbia River salmon will be extinct if present fishing practices continue.

The committee then included in its recommendation of a state Natural Resources department a division to oversee commercial and anadromous fish. Another division fish and game, would deal with sport fishing. Commercial fishermen have complained for years that sportsmen take too many salmon, and sports fishermen have opposed every move that would enable the commercial fishery interests to assume control of the salmon resource.

Bonneville Chinook Passage High

The number of chinook salmon passing over Bonneville Dam early last month was 32,000 according to a report of the Oregon Fish Commission recently in Portland, the second highest count for the period since 1949. The river conditions continue favorable for passage, with flow conditions at Bonneville Dam considered excellent, according to George Hirschhorn, head of the Commission's Columbia River investigations.

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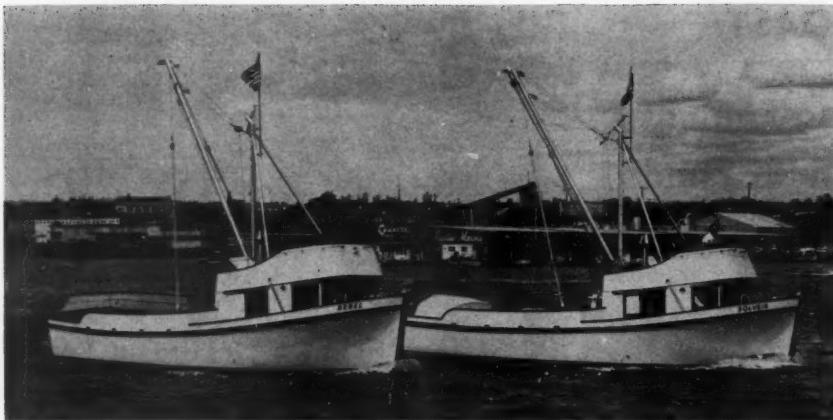
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JULY, 1960



A PAIR OF SEINE BOATS built for the San Juan Fishing & Packing Co. of Seattle, Wash., the "Rebel" and the "Solveig". Three of these boats were built by Sagstadt Shipyards from designs made by William Garden, Seattle Naval architect. Two of the boats are powered with 4-53 General Motors Diesels and the third is powered by a Chrysler Royal. The boats will fish Alaskan waters.

Pacific Coast Tuna Industry Development Is Outlined

A circular outlining a program of research and development for the Pacific Coast tuna industry was released recently by the U. S. Bureau of Commercial Fisheries. While the legislation authorizing and directing the Bureau to assist the fisheries is broad, the program proposed to aid the tuna industry stresses those activities that give the most promise of being useful to the industry.

The Bureau proposes to assist the tuna fishing industry in three major fields: (1) by helping the domestic fleets find and catch fish more quickly; (2) by helping the fishermen deliver higher quality fish to the canneries and, in turn, help the processors improve their products; and, (3) by keeping the domestic industry well-informed of activities and developments respecting tuna, both domestic and worldwide, as they may affect production and marketing in the United States, so that the industry can plan its operations intelligently under changing conditions.

Salmon Migrating In Increased Numbers

The 75,000 mark has been passed by ocean-bound salmon and steel-head passing through the Portland General Electric Company's North Fork dam fish passage facilities on the Clackamas river. The total is increasing daily as the 1960 downstream migration passes its peak. Already equaling 25 percent of last year's 59,889 figure, the total count shows substantial increase in each of the three species (chinook salmon, silver salmon, and steelhead trout) making up the total migration.

However, most outstanding is a four-fold increase in the chinook salmon count, now about 17,000 against 4,084 in 1959. Silvers are approaching 21,000, compared to 16,814 for 1959, and steelhead are up some 2000 over last year.

Oregon Commission May Raze Lafayette Dam

Unless an acceptable fish ladder is provided by Yamhill County at the ancient and partially-effective Lafayette Dam on the Yamhill River, the Oregon Fish Commission recommended recently in Portland that the structure be removed to permit normal passage up the river by spawning salmon and steelhead.

Under Oregon law, according to Robert L. Rulifson, aquatic biologist of the Commission, stream barriers must either be removed or fishways provided for escapement of fish. The old dam, built at the turn of the century by the U. S. Corps of Engineers and later turned over to Yamhill County by the Commission, has provided no fish passage for 25 years.

Predicts Increase In Production Of Washington Oysters

The Director of the Washington Department of Fisheries said that the immediate future in the oyster industry of the State should produce a bumper crop of oysters. The warm weather during the summer of 1958 provided an unprecedented natural setting of Pacific oysters in many areas of Puget Sound, he said.

Today beaches, rocks, piling, logs, and other obstacles in lower Puget Sound, Hood Canal, Fidalgo Bay, March Point, Samish Island, Blaine Harbor and in the San Juan Islands are covered with half-grown oysters. If these oysters continue to grow it is expected that the total crop may exceed one-half million bushels and provide stocks of edible oysters for several years to come.

New Washington Water Purity Standards Criticized By Oyster Association Man

Edward J. Gruble, Pacific Coast Oyster Growers Association trustee, said adoption of the proposed standards would be a "sellout" to the pulp industry and would be detrimental to private waterfront property owners and businessmen in the state.

Art Garton, Washington Director of Pollution Control, said recently that critics of proposed new water purity standards were "unfair" in expecting the interim standards to be a cure-all for all pollution problems.

The Pollution Control Commission were scheduled to meet in Olympia this month to consider adoption of a resolution permitting maximum permissible quantities of sulfite waste liquors in waters over oyster beds. The proposed interim standards are those recommended by Doctors Gordon Gunter of Mississippi and Jack McKee of California in a recent study they completed for the state.

Gruble charged that the commission proposes to "allow lethal concentrations of pulp mill pollution" over commercial oyster growing districts. He asserted the move was against the advice of the Washington Fisheries Department which, he said, is being ignored.

Garton said the Gunter-McKee report considered technical information given them by the fisheries department in 57 instances. He said the proposed water standards would be subject to further study, research and change.

"The commission will in the future, as it has in the past, diligently work toward a program of complying with the law and protecting all the waters of the state of Washington for present and potential users," Garton said.

Oregon Boat Strikes Buoy, Sinks

The Coos Bay, Oregon boat, the *Elsie Faye*, a 36-foot troller, caught in a strong ebb tide, was swept into a buoy in the Columbia River and sank within five minutes. D. E. Donahe, Chelhalis, Wash., owner and operator of the boat, and his crewman F. T. Christler, Vancouver, Wash., managed to get their eight-foot dinghy in the water and board it, as the *Elsie Faye* floundered.

SOUTH ATLANTIC

Easy Method To Open Scallops Key To New Florida Industry

A Florida Congressman has requested the St. Petersburg regional office of the Bureau of Commercial Fisheries to investigate and develop the technology of opening, processing, and marketing scallops. The Congressman contacted the Bureau after he had been informed the major obstacle to the development of the new fishery was the difficulty and expense of opening the scallops by hand.

Ernest Widmer, chairman of the Chamber of Commerce's waterways committee said the main problems of handling a scallop industry in the area, are those of processing and proving the ability to raise in excess of one half million dollars for a flash freeze processing and fishing plant.

To date, however, seven or eight groups of individuals of substance are prepared to back the venture, and they reportedly could raise from \$100,000 up, individually. Reports indicate some of the New England scallop fleets also are eying the new found beds off the Florida coast.

New Florida Scallops Prove Excellent in Quality Tests

More than a dozen seafood firms are running processing tests on calico scallops recovered in great quantity from what is reported to be the world's largest bed recently discovered off Florida's East Coast.

Flavor tests and preservation show no problems and firms in West Palm Beach, Ft. Lauderdale, Ft. Myers, St. Augustine, Jacksonville, Fla., and Brunswick, Ga., and North and South Carolina report great enthusiasm over the product.

The calico variety is generally smaller than the bay or sea scallop, but more than makes up for this in delicate flavor, processors declare. Catches of scallops have ranged up to 24 bushels per one-half hour tow with a meat yield of four to five pints per 80 pound bushel.

These were demonstration catches made with eight-and 10-foot modified Georges Bank scallop dredges. The new beds are not being fished commercially as yet but tests are being run on samples provided by the U. S. Bureau of Commercial Fisheries.

Commercial interests are eager to solve shucking problem posed by convex shells of the new find. Shells are easy to open but stripping the viscera from edible meat takes a step or two more than usual. A mechanical shucker, similar to those used in oysterling, has been used successfully on the Florida scallops by a South Carolina firm.

First indications of the new seafood find were noted in January during routine explorations off Daytona Beach by the *Silver Bay*, a 96-foot northern drag trawler chartered by the U. S. Bureau of Commercial Fisheries.

As a result of later work in April, the scallop is known to extend from off Daytona Beach south to Ft. Pierce (135 miles) in depths of 10 to 32 fathoms. Commercial concentrations have been found over a 1,200 square-mile area and the bed may be even more extensive.

Demand For Virginia Oysters Excellent

Houses that ship oysters the year round are doing an excellent business as the demand for them is great. Oysters at this time are in excellent condition, and it is when they are in their prime that the oyster breeding establishments in the State do their heaviest processing. Some of the oyster houses are shipping heavy supplies to the Government.



FLORIDA CALICO SCALLOPS taken from an immense stock occupying an area apparently more extensive than any other previously known scallop bed in the world. The new bed was recently discovered off the East Coast of Florida, with commercial concentrations found over a 1,200 sq. mile area.

Georgia Landings Up 34 Percent

Fish and shellfish landings at Georgia ports during the first four months of 1960 amounted to 4.9 million pounds—34 percent greater than the same period of last year. The shad fishery showed a gain of 28 percent in its catch of a half-million pounds when compared to the January-April period in 1959. Blue crabs increased nearly 1 million pounds during this period of 1960.

Landings of fish and shellfish at Georgia ports during April, 1960 totaled 1.6 million pounds, an increase of 5 percent compared with April 1959. Blue crabs made up 90 percent of the month's total. High winds, rough seas, fog, and heavy rains hampered trawl operations to some extent.

Spot, Croaker Catches Improving

Definitely improved production is reported in the Hampton Roads area this month by Stanley Fass of Isaac Fass, Inc., Portsmouth, Va. Catches of spot and croaker picked up early this month following a poor showing in June. Rockfish are beginning to appear and should increase from now on. Most of the catches are from haul seines, with some production from pound nets.

The *Sol Fass* completed her first trip since converting to scalloping when she brought in 23,000 lbs. the latter part of June after being out ten days with a 12-man crew.

Virginia Production Good

Production in the Hampton Roads area for May 1960 was 2,800,000 lbs. compared to 3,000,000 lbs. for May 1959.

Fisheries production in the Lower Northern Neck (Lancaster County) for May 1960 was 2,400,000 lbs. as compared to 1,400,000 lbs. for May 1959. In the Eastern Shore area, production for May 1960 was 160,000 lbs. as compared to 143,000 lbs. for May 1959.

Scup (porgy) was the most numerous fish with 2,000,000 lbs. for May 1960 compared to 1,444,000 lbs. for May 1959. Fluke was the second most numerous fish with 190,000 lbs. Croaker, the most desired fish, took fourth place numerically, with 120,000 lbs. for May 1960 compared to 400,000 lbs. for May 1959.

Oysters shucked for May 1960 in the Hampton Roads area amounted to 300,000 pounds as compared to 280,000 lbs. for May 1959. Crabmeat production for the area for May 1960 was 210,000 lbs. as compared to 180,000 lbs. for May 1959. Scallop production in the Hampton Roads area for May 1960 was 50,000 lbs.



Aurora, N. C. trawler "Jackie" owned by H. C. Potter, Sr., is powered by a 225 hp. General Motors 6-110 engine with 4.5:1 reduction gear. The 67' boat includes in the equipment New Bedford cordage, Raytheon Fathometer, and radiotelephone, and Stroudsburg hoist. She is finished with Gloucester Sea Jacket paint.

South Carolina Landings Double

Landings of fish and shellfish at South Carolina ports during April, 1960 totaled 1.1 million pounds, twice the volume landed in the same month last year. Blue crabs (730,000 pounds) and oyster meats (265,000 pounds) made up 91 percent of the month's total production. Shad landed in April 1960 totaled 26,000 pounds. None were caught during the same month last year.

The production of fish and shellfish during the first four months of 1960 totaled 3.7 million pounds- an increase of more than a million pounds over the same period of 1959. Blue crabs(2.3 million pounds), oyster meats (936,000 pounds), and catfish (116,000 pounds) were the principal items caught during this period, making up 92 percent of the four-month total.

New Crab Pot and Trap Rules Effective in South Carolina

The crab fishermen have proposed and agreed to certain rules and regulations to govern the setting of crab pots and crab traps, G. Robert Lunz, Director of the S. C. Division of Commercial Fisheries, announced.

Last month, a circular letter was sent to all persons holding a license to operate crab pots in South Carolina. The replies to these letters, together with conferences with fishermen up and down the coast resulted in the formulation of four basic rules.

First, every crab pot buoy must be marked with the number of the license under which it operates. This numbering can be on the trap buoy or painted on a small tag attached to the upper end of the trap buoy line. Some fishermen are already identifying their buoys by initials or color codes. Universal numbering will make the system more uniform, positively identify the owner of the trap, and aid the Division in law enforcement. It will also be of some help in cases of vandalism.

The second of these rules will prohibit anyone from deliberately setting a crab pot within 100 yards of any public landing or boat ramp. The third rule prohibits the setting of a trap so that it will be left dry at low water. This is a simple conservation measure. After a storm or extremely high tides, some pots will drag anchor into shallow water, but Fisheries Inspectors will take that into consideration. The fourth regulation outlaws the use of glass jars, metal cans, or glass jugs for floats.

Oyster Interests Could Veto Deepening of James River

Oyster interests, backed by the Virginia Fisheries Commission, are resisting plans to deepen the James River, contending the work could adversely affect the State's seed oyster beds located in the James River between Jamestown and Hopewell. These interests could veto any attempt at the dredging by evolving a 1958 state law prohibiting dredging between the James River Bridge at Newport News and Jamestown Island.

At the instigation of Richmond and Hopewell interests seeking to make their cities more accessible to shipping, the engineering and economic studies were authorized by Congress in 1956. The studies indicate that a 32 foot channel would cost about \$25 million, and a 35-foot channel about \$35 million.

It was indicated by a Norfolk district spokesman that details of the report will not be made public until it has been reviewed and possibly revised by such agencies as the U. S. Board of Rivers and Harbors, the Secretary of the Army, the chief of the engineers' corps, and Congressional committees. Once approved by these agencies, Congress will have to pass authorization and appropriation bills before any actual construction work can be planned.

Oystermen Hindering Industry by Opposing Change Says Maryland's Byrd

"The oystermen have successfully blocked every attempt that has been made to develop the oyster industry through better farming," according to Dr. H. C. Byrd, chairman of the Tidewater Fisheries Commission. "It is a known fact that the oyster production has been diminishing year by year until last year was the lowest in the history of the state," he told a legislative committee recently. The answer, he maintained, is the same as applied to Maryland agriculture- "more intensive and more economical farming of our underwater lands."

He again urged adoption of his proposal for cooperative farming by the watermen with the state furnishing the shells. "Something of what may be accomplished in this way is shown by actual conditions that existed on one small oyster ground in the Wicomico River," the Tidewater chairman said. "This particular oyster ground has not only been yielding excellent returns year after year, but the owner of it recently made the statement that he would not sell the ground for \$125,000. He paid \$10,000."

On the other hand, Byrd said, there is an exaggerated notion about the amount of money that oystermen make. He said one of the "best dredgers in the state" estimated that he and his crew netted \$75 a week "during a good dredging season." But Byrd said the individual oysterman is fearful of leasing "because of the adverse effect they felt it would have on their own fortunes." His request for expansion of cooperative leasing in Maryland was part of a renewal of his quest for broader powers.

Among other changes which he is seeking is authority to regulate the opening and closing of oyster seasons, use of gill nets for commercial fishing without licensing, more latitude in fishing licenses, and power to open and close oyster bars.

North Carolina Landings Up 6 Percent

Landings of fish and shellfish at North Carolina ports during April 1960 totaled 14.3 million pounds, 6 percent above April 1959. Most of the increase in the total landings was the result of greater landings of alewives and blue crabs (up 440,000 and 330,000 pounds respectively). These two items made up 90 percent of the total catch in April.



Typical lobster fishing port is Corea, Maine which has over 50 boats.

MAINE SEAFOODS FESTIVAL to Feature Lobsters, Sardines, Fish

HANCOCK COUNTY IMPORTANT SEGMENT OF MAINE FISHERIES

Trained fishermen with the latest equipment are all set to put on a herring seining demonstration for visitors to the 1960 Maine Seafoods Festival at Rockland. This new Festival feature will be staged on August 6, the second day of the three-day celebration which will honor Maine's famous seafoods for the 14th consecutive year.

For the first time the public will get a close look at the way the silver-sided fish which become Maine sardines are caught. Spectators will see a spotting plane searching out the herring school. They will see the latest technique in "herding" fish by means of an air bubble screen, demonstrated by a team of marine scientists from the U. S. Bureau of Commercial Fisheries. They will see the seine boats arrive and will have ring-side seats as the fishermen "make a set" within a few yards of the Festival grounds. And they will see the final stages of the operation with the arrival of the carrier vessel which will pump the fish aboard for delivery to the packing plant.

Among the cast of characters will be Hugo Lehtinen and his crew of seiners from St. George; Keith Smith, gear development specialist from the Bureau of Commercial Fisheries; and carrier crews from Holmes Packing Corp., Port Clyde Packing Co. and Green Island Packing Co.

Sponsor of this unique event is the Maine Sardine Council which, together with the Department of Sea and Shore Fisheries, is working out the details of this real-life drama. To demonstrate the finished product, Maine sardines will be a feature of the banquet menu for the first time in the Festival's history.

A variety of Maine's ocean-fresh seafoods will be included in this year's menu. In addition to the traditional lobster banquet, there will be a special fish dinner served throughout the three-day festivities. The fish dinners will include 40-Fathom haddock portions, pickled beets, potato balls and corn muffins.

Following the opening-day feast of Maine seafoods on August 5, there will be the usual elaborate marine pageant. King Neptune will arrive from the sea with his famous court. Some two dozen lovely princesses will parade with their uniformed escorts from the Maine Maritime Academy, and the 1960 Maine Sea Goddess will be selected and crowned by Governor John H. Reed. The evening's entertainment will wind up with the annual coronation ball.

Other Saturday features will be a mile-long parade featuring a record number of bands and other musical units, clowns, floats, and marching units from visiting naval vessels. Interested Izaac Waltons will have a chance to take part in a giant salt water fishing derby. A memorial service for Maine men lost at sea is scheduled Sunday afternoon on Fishermen's Memorial Pier.

Stretching from the eastern side of Penobscot Bay to Frenchman Bay and Schoodic Point, Hancock County is an important segment of the Maine fishing industry. It could well be termed the scenic island empire of the fisheries, with most of the activity concentrated on Mount Desert Island, Deer Isle, Swans Island, Long Island and Cranberry Islands.

The County's 1959 catch of fish and shellfish totaled 24



Leading lobster port on Maine Coast is Stonington, located on Deer Island which has 200 lobster boats.

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JULY, 1960

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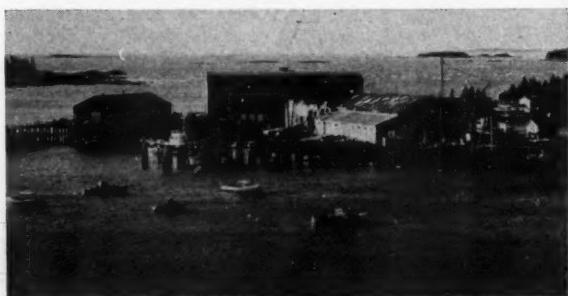
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ESTABLISHED 1929 CORPORATION INCORPORATED 1930
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S
New Officers of Maine Lobstermen's Association which held annual meeting at Rockland, Me. last month. Seated, left to right: Warren Fernald, Islesford, Hancock County councilor; Farrell Lenfesty, Beals, first vice-president; Leslie Dyer, Vinalhaven, elected to sixth term as president; Rodney Cushing, Cliff Island, second vice-president. Standing: Alger Burgess, Chebeague Island, Cumberland County councilor; Closson Alley, Jr., Beals, Washington County councilor; Vernon C. Bryant, Round Pond, councilor for Lincoln and Sagadahoc Counties; Everett S. Watts, Tenants Harbor, councilor for Knox and Waldo Counties. Justin Foss, Cape Porpoise, York County councilor, was absent.



million pounds, worth 3 1/3 million dollars, placing it third in value and fourth in poundage among Maine's seven coastal counties.

Hancock County's lobster catch of 5,203,000 lbs. was a close second to Knox County's production, and represented nearly 1/4 of the State's lobster take. Fifteen percent of Maine's herring catch, or 16,388,000 lbs., was produced by Hancock; and it was the third ranking county in groundfish, landing 607,000 lbs. in 1959, mostly haddock and cod.

The economies of many Hancock County seaport towns are almost wholly dependent on some aspect of the fishing industry. There are many "lobster towns" where nearly every citizen has something to do with the catching or selling of live Maine lobsters. As a result, the welfare of this area of the State's fisheries is of particular interest to Maine's Department of Sea and Shore Fisheries, of which Ronald W. Green is Commissioner.

A force of coastal wardens patrols the coastline of the county, working closely with the fishermen and other members of the industry and keeping the Department's headquarters at Augusta informed of conditions. Both of the Department's larger patrol boats, the *Explorer* and the *Guardian*, make periodic visits along the coast.

Marine biologists of the Department's research division keep in close touch with the problems of the industry and make frequent field trips in order to give practical assistance. Their work includes regular inspection of clam flats and checks on pollution, and trouble-shooting assignments to lobster pounds where mortalities have been unusually high. In addition, a Department statistician makes regular visits and compiles monthly totals of fish and shellfish landings and values, and collects other pertinent data of value to the industry.

Stonington Leading Lobster Port

Stonington is considered the number one lobster port in the State, having the largest number of boats and buyers. In the Stonington-Deer Island fishing industry there are approximately 200 inboard-powered, year-round lobster boats, plus over 100 outboard-powered commercial lobstermen.

About 10 lobstermen convert to scalloping during the Nov. 1-April 1 inshore season. There are 10 herring seiners in the area and 4 lobster pounds. A new business at Stonington is the gathering of sea moss, which is being trucked to Rockland by Donald Stuart. James and Joseph Ferriera are buying clams with trucks at the port.

The only fishermen's cooperative in Hancock County is the Stonington Lobster Co-op, of which Harold Greenlaw is manager, secretary and treasurer. President of the organization is Capt. Alston Robbins, who owns the 48' seiner *Duchess*, 35' lobster boat *Jewell* and a plane for spotting fish. Damon Gross is vice-president.

Incorporated in 1948, the Co-op has 75 members. It buys lobsters, sells supplies and is dealer for Flagship and Chris-Craft engines and Mobil marine oils.

R. K. Barter Canneries, Inc. cans Deer Isle and Coastal Kitchen brand sardines at Stonington, employing 90

packers. R. K. Barter is president and Samuel Leighton is manager of the firm which occupies a plant that was built 46 years ago by North Lubec Mfg. & Canning Co.

Barter has four sardine carriers: the *Kingfisher*, Capt. Donald Trundy; *Betsy and Sally*, Capt. Jep Hicks; *Novelty*, Capt. Alfred Sheppard; and the spare boat *Christopher*. H. G. Reed, Inc. of McKinley recently installed Raytheon radar on the *Kingfisher* and the *Novelty* which was recently acquired from Burnham & Morrill.

Stonington-Deer Isle Yacht Corp. at Stonington has a 185' x 90' building shed with accommodations for building vessels up to 145' under cover. Three railways are available with capacity up to 500 tons and a marine supply store is provided. Cecil Billings is president of the yard which was established in 1929; Fred C. Gatcombe is General Manager and Fred Maxcy is Chief Engineer.

Barlett's Radio and TV, Stonington, owned by Mario Bartlett, has made several electronic gear installations. Jackie McDonald's 38' lobster boat of Stonington has a 35-watt Sonar telephone; Emery Davis' 40' lobster boat of Stonington has a 65-watt Sonar telephone; Carl Batchelor's 45' lobster boat at Swans Island has a 35-watt Kaan telephone; Bert Nevels of Isle au Haut has a new 35-watt RCA telephone in his 48' lobster boat which he purchased from Stanley Dodge; Sonar depth indicators have been installed in George Hardy's 28' lobster boat and Stanley Eaton's 40' lobsterman, both of Stonington.

Colwell Bros., lobster buying and fishing firm at Stonington, was established in 1947 by Alfred and Albert Colwell. They have two pounds and two weirs, and own the 45' lobster and bait smack *Nicola C.*, Capt. Sydney Hodgkins; and the 42' seiner *Lucky Star*, Capt. Andrew Gove. A full line of fishing supplies is handled, and Andrew Leali is store manager.

Gove is highline halibut fisherman in Stonington this year, having caught 108 fish, including two 138-pounders,



Harvard R. Beal's "Ocean Belle" which has been fitted for air bubble herring operation at Southwest Harbor, Me.

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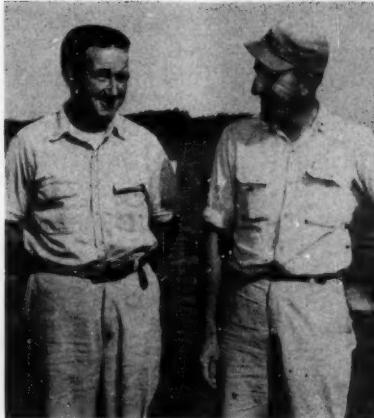
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Halifax
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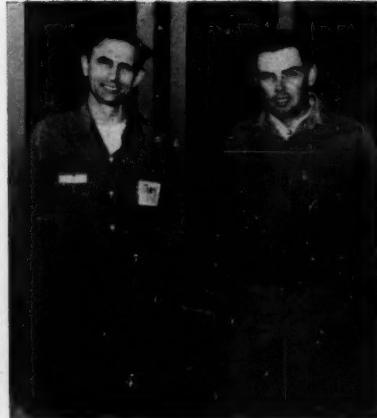
Yarmouth, N. S.
Tel. 1960



James Harper, left, manager; and Maurice Rich, owner of C. H. Rich Co., lobster and crab buyer, McKinley, Me.



Capt. Alston Robbins, president, left; and Harold Greenlaw, manager of Stonington Lobster Cooperative, Stonington, Me.



Andrew Leoli, left, Colwell Bros., Stonington, Me. lobster buyer; Capt. Andrew Gove, high-line halibut fisherman.

from April 27 to June 15. He fished with his 32' lobster boat *Rose*. About 10 Stonington fishermen went out for halibut this season.

Alley Bros., who buy lobsters at the former Barter Lobster Co. location in Stonington, are now making extensive renovations and improvements in their docks and bait house. The business is operated by Wellington and Lewis W. Alley, with former partner, Orrin Alley, now lobstering.

L. Clyde Conary operates a lobster buying and fisherman supply business at Stonington, Me., established in 1944, and services five lobster buyers. Conary owns the 52' sardine carrier *Alice*, Capt. Llewellyn Sadler, the 42' seine boat *Hazel Harriet*, Capt. Richard Spencer and the 48' dry smack and bait boat *Chippewa*, Capt. Herbert Aldrich. Capt. Linwood Gray of Stonington operates a lobster carrier for picking up lobsters at nearby islands for Conary.

Perry B. Duryea of Montauk, N. Y. recently purchased Anthony George's lobster pound at Stonington. Originally owned by R. K. Barter, the pound is managed by Capt. George Torrey who commands Duryea's lobster smack *Perry B.*

Other lobster buyers at Stonington include E. A. Crozier Co. and Wm. M. Fifield, while A. C. Heanssler buys lobsters and has a pound at Deer Island.

Atlantic Avenue Hardware Inc., Stonington, of which Gordon Richardson is president, was established in 1930, and associated with R. K. Barter for 18 years. A marine electronics business is conducted by Wheeden Electric Co. of Stonington.

Mobile Radio for Sardine Packers

The latest development in the Maine sardine industry is the use of a mobile radio system connecting boats and plants, and providing station-to-station, private conversation. The first installation of the new General Electric equipment has been made by Stinson Canning Co., with headquarters in Prospect Harbor.

The new system connects the firm's five plants, 10 carrier boats and plane, each of which has a number that can be dialed. A Secode attachment actuates the speaker of the called phone only and allows private conversation between two units.

Air distance between the most distant plants is 125 miles, and a 450 megacycle repeater on a 130' tower is located at No. Penobscot. There is a 130' transmitting tower on the So. Portland plant, and 60' towers at the Prospect Harbor, Southwest Harbor, Belfast and Bath plants.

The mobile radio equipment was sold by Kempt Communications of Granby, Conn., and installed by Eastern Telephone Co., Liberty, Me., which has been appointed Maine service representative for G. E. mobile equipment. A two-way G.E. mobile radio system now is being installed by Holmes Packing Corp. to connect its boats and sardine plants at Rockland, Portland and Eastport.

Officials of the Stinson Canning Co. are Calvin L. Stinson, Sr., chairman of the board, Calvin L. Stinson, Jr., president and treasurer, Charles B. Stinson, vice-president, Annie A. Tracy, secretary, and Richard Trenholm,

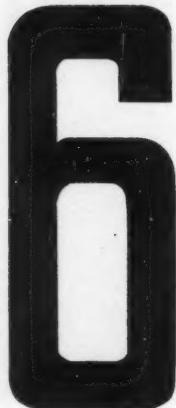


F. J. O'Hara & Sons outfitting dock, Rockland, Me., showing Capt. Maxwell Young's seiner "Catherine-Beverly," and O'Hara's dragger "John J. Nagle."

Right: Milton S. Clark, freezer manager, removing quick frozen fillets from new Amerio plate freezer at O'Hara plant.



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Arthur N. Thurston, Sr., left, president; and Raymond "Tweed" Graham, plant manager, 40-Fathom Fisheries, Inc., Rockland, Me.

sales manager. Charles Stinson is in charge of plants and boats, and pilots the Company's Cessna 180 amphibious plane for spotting fish and traveling between plants.

Stinson's Prospect Harbor plant has been operated under its present name since 1940, prior to which it had been Wass & Stinson Canning Co. for 13 years. Neptune Brand in key cartons is the main item, although several keyless brands, including Beach Cliff, are packed. The raw pack process is used and 116 packers are employed.

Boats operated by Stinson at Prospect Harbor are the carrier *Glenn Geary*, Capt. Vineyard Ray; carrier *Ida Mae*, Capt. Ernest Woodward, Jr.; and seiner *Uncle Bill*, Capt. Randall Bickford.

Other plants operated by Stinson, all of which have the same officers, are Addison Packing Co., Southwest Harbor; Belfast Canning Co., Belfast; Bath Canning Co., Bath; and Seaboard Packing Co., So. Portland. The Addison plant is managed by Willard Colson and has 65 packers, using the conventional pre-cooked method. Carriers at Southwest Harbor are the *Continental*, Capt. Fred Lewis; and *Black Diamond*, Capt. George Lewis, Jr. New facilities have been installed for loading and unloading herring from tank trucks.

Southwest Harbor Improvements

Southwest Harbor has 4 regular inshore druggers and 30 lobster boats, several of which change over to line trawling and halibuting during the off seasons. There are 8 seining crews of 4 to 10 men each. Numerous out-of-port druggers come to Southwest Harbor during stormy weather.

Plans are in progress for the dredging of Southwest Harbor to provide increased anchorage areas, and an appropriation to cover the project has been included in a bill recently passed by Congress.

The program calls for a 6-acre area at Tracy Cove with a 6 ft. depth and a 10-acre area on the northern side of the harbor dredged to 9 ft.

The project is sponsored by the Harbor Committee of the Southwest Harbor Chamber of Commerce of which William Johnston is chairman, with Elmer Beal and Charles Sawyer, committee members.

Manset Marine Supply Co., distributor of an extensive line of marine equipment and supplies, maintains a store, warehouse and office at Southwest Harbor. Founded in 1932 at Manset and moved to its present location 5 years later, the business is owned by William Johnston and Wallace Birlam who took over in 1946.

In 1955 the firm acquired Marine Service & Co., Inc. Boothbay Harbor, of which William Carswell is manager. Sales representatives of Manset Marine are Paul Robinson and Everett Kimball, and the entire State of Maine is serviced. The firm has a 2-story 30' x 160' warehouse with sprinkler system and 2-level truck loading platforms.

Marine Service is state distributor for Universal engines while Manset Marine is distributor for Graymarine



Leroy Benner, Dept. of Interior inspector watches the fish portions entering the battering and breading machine at 40-Fathom Fisheries.

engines and Maine warehouse distributor of Columbian propellers. Other lines handled include Columbian rope, Apelco telephones, White compasses, Tobin Bronze shafts, Onan generators, Exide batteries, Devoe & Reynolds paint, Canor-Plarex clothing, Woolsey paint and Stryofoam floatation.

The 42' *Ocean Belle*, owned by Harvard R. Beal of Southwest Harbor, has been fitted with air bubble equipment for catching herring. A new engine driven compressor is installed on deck, and two reels handle the 1" polyethylene hose. The larger reel winds 2000 ft. of hose which is dropped on the bottom, and the small reel carries a 100 ft. length which connects the bottom line with the compressor.

Beal buys lobsters and sells supplies. He owns the trap seiners *Lone Wolf* and *Elva L.*, and the fishing boat *Janice E.*

William L. Carney of Manset operates Marine Electronics Co. at Southwest Harbor for servicing the fishing fleet. A lobster buyer for 35 years, Charles Rich operates a dock at Southwest Harbor where he carries lobster fishing gear.

Complete facilities for handling dragger catches are provided by Stanley Fisheries at Manset. Established in 1878, the firm was taken over by the Dunbar brothers in 1958. Charles Dunbar is general manager, and his associates are, Robert, John and Henry Dunbar. A nephew, Edwin Dunbar is manager of the ice plant, and niece Nancy Dunbar is office manager.

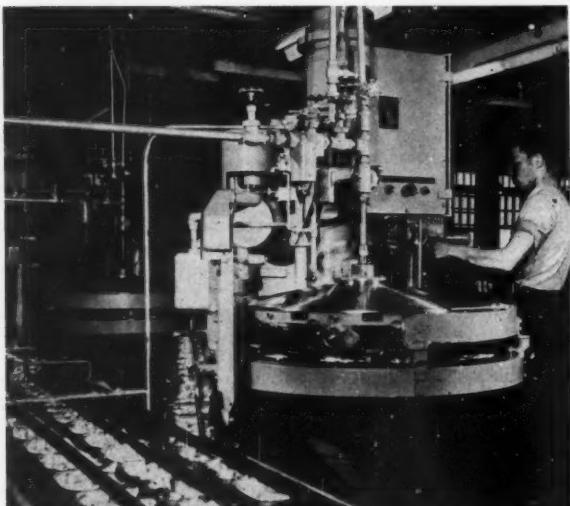
Stanley has 4 druggers, 4 line trawlers and 4 lobster boats, regularly unloading, in addition to numerous transient boats. Groundfish are filleted and frozen in 5 and



Sardine carrier "Lawrence Wayne", Capt. Clarence Beal, at Southwest Boat Corp. dock, Southwest Harbor, Me. She is owned by L. Ray Packing Co., Millbridge, Me. and powered with 6-71 General Motors Diesel.

SARDINES ARE BIG BUSINESS In Hancock County

Five Modern Plants at Stonington, McKinley, Southwest Harbor and Prospect Harbor Pack a Big Share of Maine's 2,100,000 Case Annual Production of This Popular Downeast Seafood.



Each of these plants along with 31 others in the State now operate under an official

MANDATORY QUALITY GRADING PROGRAM

To assure the trade of a better product to sell and the public of a better product to eat.

More than 60% of all sardines consumed in the United States are packed in Maine.

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MAINE SARDINE COUNCIL

15 GROVE ST.

AUGUSTA, MAINE

John Noyes, foreman, left; and George L. Higgins, Jr., owner of Higgins Fish Wharf, Bernard, Me.



10 lb. cartons under Southwest Harbor Brand. Also produced are salt pollock and smoked cod fillets. The ice plant produces 24 tons per day, and storage space is provided for 280 tons. Ample docking space, with Mobil Diesel fuel and gasoline, is provided.

New Separator for Sardine Carriers

A new type fish separator which eliminates the conventional scale settling net, has been developed by Southwest Boat Corp. of Southwest Harbor for sardine carriers. The equipment separates the scales and water from the fish.

As the fish and water come aboard they are pumped to the top of the unit and discharged over an inclined $\frac{1}{4}$ inch mesh screen. The fish travel into the hold through a chute at the end of the screen, the water goes through the screen and is discharged overboard and the scales drop on to a $\frac{1}{8}$ " mesh scale screen below the top screen from which they gravitate to a 6" x 12" x 3" receiving box. From the receiving box the scales drop through a 12" x 8" chute into a 3' x 3' x 12" collecting box which has a $\frac{1}{8}$ " screen 2" off the bottom.

Recovering the scales directly, instead of with a settling net, saves one hour in time. The settling process with a net is slow, and since the net is hung overboard and has to float in the water, it usually is necessary to hold the boat at anchor until the operation is completed, particularly in rough water. Since approximately 1,000 pounds of scales can be recovered from 800 bushels (56,000 pounds) of fish, scale recovery is a profitable operation.

Among the sardine carriers already equipped by Southwest Boat with the new separator are the Lawrence Wayne, Gary Alan, Henry O. Underwood and William Underwood.

Lennox "Bink" Sargent is manager of Southwest Boat Corp. which has facilities for building and hauling up to 110' length, 14' draft and 250 tons. The yard has machine and welding shops and derrick for heavy machinery installation. It is equipped to handle propeller repairs and reconditioning, and is a General Motors Diesel service dealer, carrying a stock of engine parts.

Bass Harbor Has Diversified Fishing

Bass Harbor, comprising the ports of McKinley and Bernard with about 45 boats, has a diversified fishing industry with two sardine plants, fish, lobster and crab buyers, and boatbuilding and supply facilities.

Maine crabmeat in pound and half-pound metal and paper containers is being packed by C. H. Rich Co., McKinley. The crabs are caught in traps by local lobstermen between June 1 and November 1, and 13 women pickers and 5 men are employed at the plant. Maurice Rich, who took over the business from his father in 1946, also buys and sells lobsters, and handles marine supplies. He operates another lobster and crab-buying wharf at Tremont, handling Gulf oil at both locations. Rich buys

High Grade Maine Sardines



Packed in Soy Bean Oil and Mustard Sauce

STINSON CANNING CO.

PROSPECT HARBOR, MAINE

SOUTHWEST HARBOR, MAINE

distributors of **Maine Lobsters**

All types of Fish
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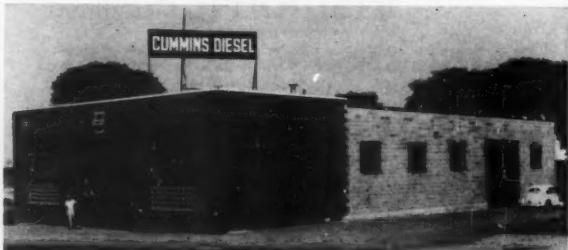
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from 35 to 40 boats and owns a 40' boat for transporting lobsters between plants and for lobstering in the winter.

A new business, Higgins Fish Wharf, started operation in May at Bernard on the site of the former C. H. Rice Co. plant which burned in 1954. George L. Higgins, Jr. is owner; and John Noyes, a 50-year veteran in the fish business, is foreman.

Thus far only fish are being bought, but lobsters will be handled later. Two York flake ice machines produce 5 tons per day, and a fish freezer is being installed. A specialty of the firm is salted fish, and 70,000 lbs. of cod and pollock already have been filleted, dried and salted in butts. Flakes are provided for drying 5,000 lbs. of split fish at one time. The fish will be packed in pound cartons in the Fall.

William Underwood Co. employs 50 packers at its McKinley sardine plant, which is managed by Rodney Latty. The carrier Roamer, Capt. Alvin Walls, serves the cannery, while the William Underwood and Henry O. Underwood carry fish for the firm's Jonesport factory.

Underwood's first plant at McKinley was built in 1906, and extensive improvements and expansions were made in 1914. The company had a lobster canning plant at Southwest Harbor before the turn of the century, and the original plant at McKinley canned clams.

Underwood french fries all its fish, being the only sardine packer with this process. After leaving the brine tank, the fish are dried with forced hot air prior to frying. The Company operates refrigerated tank trucks for bringing fish from other areas when the local supply is inadequate, and it has facilities for making fish meal from the factory's scrap.

Another sardine plant at McKinley is operated by Machiasport Canning Co. which has the carrier America, Capt. Victor Crowley. Forty packers are employed in producing Palm and Maine Queen brands, using the raw pack system. The plant was built for packing mussels and flaked fish in round cans and has been turning out sardines since 1949.

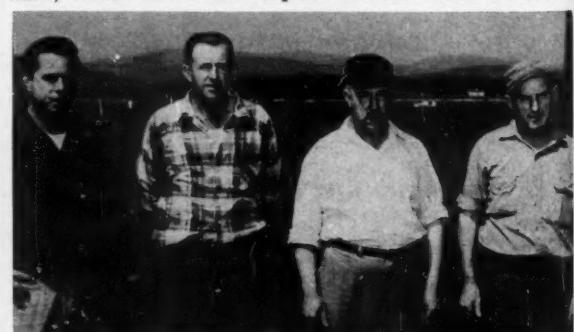
George Emmott is manager at McKinley, with headquarters of the firm located in Eastport. Lester Wass is president and Henry Wass is general manager, while Charles Kilton is manager of another plant at Machiasport port.

Perle O. Jones, owner of Chief's Radio Service Co., McKinley, is dealer for Ross Laboratories, Inc. and Kaar radiotelephones. In business since 1950, he sells and services all types of electronics equipment.

Jones recently installed the new Ross Fisherman depth sounder, as well as a 44-watt Kaar telephone on the 38' McKinley lobster boat Miss Judy, owned by Capt. Gordon Robbins.

A new 33-foot lobster boat, the Gail-David, was launched on June 29 by Davis Boat Yard for Capt. Earl F. Thurlow, both of McKinley. She is powered by a Model 308, 150 hp. Palmer engine with 2:1 Paragon reduction gear, turning a 20 x 18 Columbian propeller on a 1½" Tobin Bronze shaft. She has stainless steel fuel tank and Raytheon Fathometer.

Robert Rich owns the Bass Harbor Boat Shop at Bernard, which builds and repairs lobster boats. Power &



The four Dunbar brothers who operate Stanley Fisheries at Manset, Me: left to right, Charles, general manager; Robert, John and Henry.

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Robinson operate a machine shop at McKinley which was established in 1945, and are dealers for Palmer engines. H. G. Reed, Inc. of McKinley handles electronic equipment, and Fred Thurston Co. buys lobsters at Bass Harbor.

The 46' seiner *Ivy Bell*, Capt. Perley Stanley, owned by L. Ray Packing Co., Millbridge, was recently repowered with a 4-53 General Motors Diesel. The installation was made by Rich Bros. Boat Shop, West Tremont, which is owned by James and Merton Rich, and handles lobster boat building and repair.

Corea is Lobster Town

Corea is one of the largest lobster fishing ports in Hancock County, having 35 inboard-powered boats, a dozen outboards and about 15 other lobster boats that dock there during the winter because of its ice-free harbor. Guy Francis & Son and Myron Crowley buy lobsters at Corea; and Corea Seafoods, owned by Donald Anderson, sells fishing supplies.

Other lobster ports in this area are Winter Harbor, (30 boats) location of lobster buyer Morton L. Torry; Prospect Harbor, where buyer Rupert N. Blance is stationed, and South Gouldsboro (15 boats), where Colwell & Ford, has a buying dock.

American Lobster Co. of Rockland has lobster pounds at Birch Harbor, with Edgar E. Chipman in charge. There are three lobster buyers at Swans Island (60 boats): Richard S. Kent, M. A. Morrison and Maurice B. Sprague. Long Island (20 boats) has two buyers—Leonard A. Lunt, who represents A. C. McLoon Co. of Rockland; and Sanford Lunt. Tidal Falls Lobster Co. is operated by Dana Hodgkins at Hancock Point. Elmer Spurling buys lobsters at Islesford where there are 20 boats.

The collection point in Maine for Consolidated Lobster Co., Inc., is at Hancock Point where there are four lobster pounds having a total capacity of 635,000 lbs., with the largest single unit accommodating 450,000.

Capt. Bernard Crowley is branch manager and he is

ROSS FISHERMAN DEPTH FINDERS

Made by Ross Laboratories, Inc.

100 Fathom Flasher—Sharper, More Sensitive
Less Interference, Greater Power

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Sales—Service—Installation
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Perle O. Jones, owner McKinley, Maine
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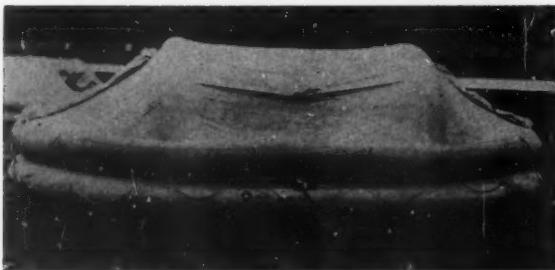
STATE-O-MAINE BRAND SEAFOODS

Portland Fish Company, Inc.

CUSTOM HOUSE WHARF PHONE SPruce 2-8331

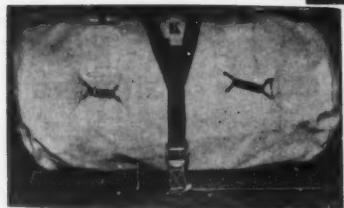
PORLTAND, MAINE

KNOWN SAFETY at Sea with the SEAFARER Inflatable Life Raft



Keeping afloat is not enough to insure survival at sea. The greatest hazard is exposure, and protection from the elements is essential. The Seafarer inflatable life raft gives maximum stability and fullest protection against climatic extremes. If you have to replace one of your dories, invest in a life raft.

New Remote Release with buckle on bridle of Nylon webbing which secures raft to deck. A stainless steel wire runs to cockpit or pilot house. This is 6-man Seafarer raft in heavy neoprene valise—ideal for smaller boats.



12-man Seafarer Inflatable Life Raft in fiber glass stowage container, aboard new scalloper "Ike & Jens". Container is hermetically sealed and goes overboard.

Service & Inspection Stations for Seafarer Life Rafts

J. W. Durant, Inc., 8 Homers Wharf, New Bedford, Mass.

Fortune Inc., 11 Plum St., Portland, Maine

Parts, material and equipment available for servicing and repairing rafts with qualified personnel.

Other Sales Agents for Seafarer Life Rafts

Bay State Marine & Equipment Co.
255 Northern Ave., Boston, Mass.

Gloucester Grocery & Boat Supply, Inc.,
17 Rogers St., Gloucester, Mass.

C. W. Wharton, Jr., 108 Water St., Stonington, Conn.

Seafarer Life Rafts are available in 4 to 25 man sizes. The 4-man raft, measuring only 38" x 20" fully packed, is ideal for smaller boats which lack space for dory or life boat. Made of same quality and equipment as larger size rafts.

For particulars, write the U. S. Distributor

CAPT. A. J. PEDERSEN

9 Ricker Park, Portland, Maine

The Seafarer is made by Dunlop Rubber Co., Ltd.



Stinson Canning Co. officials at Prospect Harbor, Me. Left to right: Charles B. Stinson, vice-president; Wilfred Madore, foreman; and Perley McNutt, plant manager.

assisted by Allison Workman and a 12-man crew. The company has buyers in Stonington, Winter Harbor, Addison and Jonesport.

Lobsters are seined from the pounds by a power winch; there are facilities for storing ice and cooking weak lobsters. Lobsters in the pound are fed every other day with herring and redfish. They are trucked to the Gloucester, Mass. headquarters of the company for distribution under the Ocean-Clear label. Arthur C. Babson is president of the company.

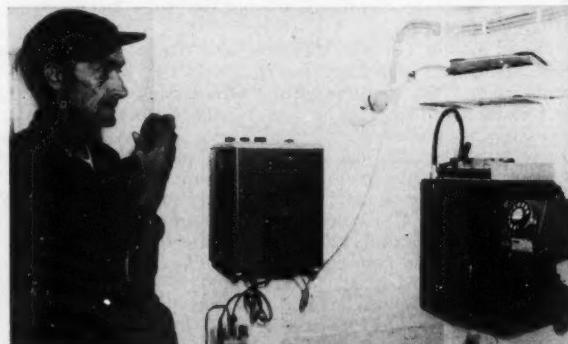
Rockland Catch Continues Increase

The trend in Rockland fish landings continued upward for the first six months of this year. The ocean perch catch went ahead nearly 5 percent, totaling 18,600,000 lbs. compared to 17,800,000 in the first half of 1959. Landings of groundfish (cod, cusk, hake, pollock, haddock, gray sole and dabs) increased 17 percent for the first 6 months, totaling 780,000 compared to 665,000 in the same period last year. Species showing the largest gain were sole and dabs which jumped from 153,000 to 208,000 lbs.

A new department for packing breaded fish portions has been put into operation by 40-Fathom Fisheries, Inc., Rockland, employing 15 people.

The raw material for the new product arrives in 15½ and 16½ lb. size blocks from the 40-Fathom Division of National Sea Products, Ltd., Halifax, and Louisbourg Fisheries, Ltd., Louisbourg, N. S. Two sawing operations produce the proper size individual portions which are conveyed to a Greer Fryopac FPI breader and FN batterer, after which they are packed in cartons.

Now being packed at Rockland are 4 oz. portions of haddock, cod and catfish, and 2 and 3 oz. portions of had-



Capt. George Lewis, Jr. aboard Addison Packing Co. carrier "Black Diamond" at Southwest Harbor, Me. which has new Bendix Skipper 303, 65-watt radiotelephone; and General Electric mobile radio for communicating with Company boats and plants.

SERVING THE FISHING INDUSTRY

and Marine Dealers in Maine

Distributors of

Columbian Rope
Exide Batteries

Graymarine Engines

Tobin Bronze Shafts
Woolsey Paints
Canor-Plarex Clothing

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Apelco Radio Telephones
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Onan Marine Generators

Maine Warehouse Distributors of Columbian Bronze Propellers

MANSET MARINE SUPPLY CO. MARINE SERVICE & CO., INC.

A Complete Line of Marine Equipment and Marine Hardware

Southwest Harbor, Maine
Chestnut 4-5528

Boothbay Harbor, Maine
Telephone 464

dock and cod which are placed in 6 lb. institutional size cartons. The portions are packed and quick frozen in plate freezers under continuous Department of Interior inspection. They are sold under 40-Fathom Brand and private labels.

Soon to be packed will be 1 and 1½ oz. haddock portions, and in the near future consumer size packages will be in production. Another new product to be packed is breaded individual frozen fillets of cod, haddock and ocean perch, each fillet weighing 2½ to 5½ oz. and placed in 5-lb. institutional cartons.

Arthur N. Thurston, Sr. is president and manager of 40-Fathom Fisheries; K. H. Ritcey is assistant manager, Raymond "Tweed" Graham is plant manager, A. N. Thurston, Jr. is in charge of whiting operations and purchasing, and Capt. John Christopher is marine superintendent, supervising operations of the firm's six steel trawlers which produce ocean perch for the Rockland plant.

New equipment for processing whiting as a separate operation has been set up by F. J. O'Hara & Sons, Inc. at its Rockland, Maine plant. Three new whiting heading machines, whiting scaler and necessary conveyors have been installed.

A third new large size Amerio plate freezer has been added so that the plant now has more than double the freezing capacity of its former tunnel system.

A new label, "Down East Brand", is used for smaller ocean perch, in addition to the firm's "Tip Top Brand". The new whiting line, under "Tip Top Brand" includes dressed whiting in 1½ and 10 lb. packages and whiting fillets in 10 lb. cartons.

O'Hara now has two types of ice available for boats—crystal clear and white ice which are sold in blocks or crushed. Texaco marine products are handled.

Francis E. Donahue is manager of the O'Hara firm which operates three driggers: the Brighton, Capt. Neal Farrell; Araho, Capt. Galen Arey and John J. Nagle, Capt.

**Feyler's FISH
SCALLOPS**

Fresh & Salt Fish of All Kinds

FEYLER FISH CO. INC.
ROCKLAND, MAINE

Lyric 4-8489

Residence: Thomaston, Maine—Fleetwood 4-6441

BOAT BUILDING AND HAULING

Overnight Repairs or Major Jobs

Equipped to Give Fast Service

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GOUDY AND STEVENS

EAST BOOTHBAY, MAINE

Fresh and Frozen MAINE CRABMEAT

*Gulf Oil and Gasoline
Fishermen's Supplies*

C. H. RICH CO.

MCKINLEY, MAINE
Chestnut 4-3485

MAINE SARDINE COUNCIL'S new research director, Joseph F. Puncochar, who succeeds Dr. B. S. Clark. Formerly regional director of U. S. Bureau of Fisheries, Gloucester, Mass., Puncochar has held posts in Alaska, Puerto Rico, Venezuela and Middle Atlantic and New England states. He has worked with canned fish products, and directed a cooperative program between the Council and Bureau which led to the present sardine industry research, grading and quality control.



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The world's most Experienced builder of
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OSCO MOTORS CORPORATION
Philadelphia 40-AF, Penna.
Cable: OSCOMOTORS Phila.

Toivo Tarvainen. The Brighton recently was equipped with a new 6-71 General Motors winch engine.

New Fiberglas Shell for Derelict

A demonstration of how an old wood hull can be economically reinforced with a heavy Fiberglas shell or skin to provide a new boat, is being conducted by Glass Plastics Corp. at Anderson Boat Works in Thomaston, Me.

The boat selected for the project is a 34'6" x 10' derelict lobsterman, estimated to be 40 years old, and abandoned on the beach for 4 years. Formerly the *Skip John*, she has been renamed *Charlie M.*

Although she had long since served her purpose and was no longer usable, the boat still had in substance a good form which could be utilized. In the building of a Fiberglas reinforced boat, a form or a mold of one kind or another is necessary.

After hauling her out at the boatyard, all the old paint was removed, and holes, cracks and gouges were filled with Tuff Poly Mender, a Polyester base putty-like material. Next, the layers of Fiberglas Mat, Blue-Sheen Woven Roving were applied, topped off with Blu-Sheen Fiberglas Fabric to provide an acceptably smooth exterior. The last operation after the build-up of these laminations of material will be painting with Tuff Epoxy paint. A new formulation of anti-fouling paint will be applied to the bottom.

The form will stay in the new skin when it is finished for it will still supply some structural value and bulk, and its interior will be utilized to some extent in establishing structural members to mount new cabin, decks, floor, etc.

After completion, the new shell with the old form will be launched, secured fore and aft in rocky tide water and allowed to rise and fall with the tide. It is then planned to finish the *Charlie M.* as a commercial lobsterman and put her into service.

Stonington, Me. dragger "Louise" owned by Capt. Elmer Gross, on railway at Stonington-Deer Isle Yacht Basin.



NORTH ATLANTIC

Gloucester Lab Devoted to Long-Range Fishery Studies

The new U. S. Bureau of Commercial Fisheries \$450,000 lab in Gloucester, Mass., one of the world's finest technological laboratories devoted to long-range investigations of marine resources, was dedicated last month.

The new Gloucester laboratory is now conducting operations in three major work areas: 1. The development of standards and specifications for fishery products. 2. Preservation and engineering studies both on vessel and ashore. 3. Chemical studies on the composition of fish and fishery by-products.

Presently, preservation studies are being conducted on what is called the "time-temperature-tolerance" of frozen fishery products and on new methods of chilling and freezing fish at sea and on shore.

The time-temperature-tolerance project is concerned with investigations of the effects of various combinations of temperature, storage time, relative humidity in the storage room and other factors experienced during distribution on the quality of fishery products.

The design of the pilot model refrigerated sea-water installations for use at the processing plant or aboard fishing vessels, studies on the freezing of fishery products and on methods of improving plant and vessel sanitation are included in engineering projects.

Studies of flavor and odor have, as their immediate objective the identification of those compounds that provide the flavor and odor of fresh fish and fish that has deteriorated during storage.

Gharrett Named Regional Fish Director

Appointment of John T. Gharrett, regional director of the Bureau of Commercial Fisheries in Alaska, as director of the Bureau's regional office in Gloucester, Mass., was announced recently by the Interior Department. Gharrett replaces Joseph F. Puncochar, who resigned, to become director of research for the Maine Sardine Council.

Gharrett has been employed in fisheries research and management since 1940. He has been with the International Pacific Halibut Commission and joined the Bureau of Commercial Fisheries in Juneau, Alaska, in 1955.

Groundfish Exemption on Annual Basis

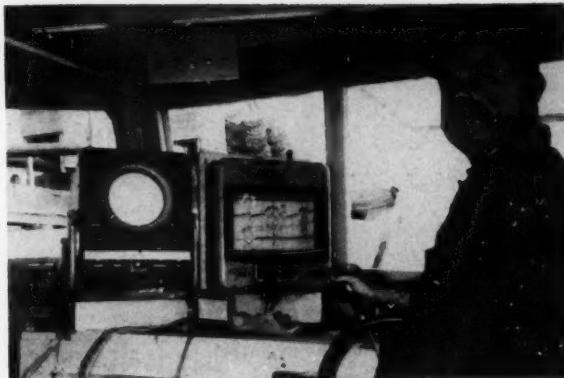
Maine draggers fishing in the Gulf of Maine will be permitted to continue to fish with smaller-mesh nets, provided not more than 10 per cent of their annual catch is composed of cod or haddock, according to Maine Sea & Shore Fisheries Commissioner Ronald W. Green.

This exemption will be continued on an experimental basis as the result of unanimous agreement of the 12-nation International Commission for the Northwest Atlantic Fisheries which met recently in Bergen, Norway.

The original mesh regulations which applied to single trips, created an unfair situation for the small draggers. On an annual basis their total catch was well below the allowed 10 per cent of cod or haddock, but on individual trips they sometimes brought in considerably more than the regulations permitted.

Whiting Catches Underway

Good whiting catches were reported at Portland during the last week in June and the first week in July, with 14 boats fishing. Among the Virginia boats red-fishing out of Portland for the summer are the *Courier* and *Dragnet* at the Portland Fish Co.; *Bobby and Jack*, *Sea Hawk*, *Resolute* and *Lawson* at Maine Fisheries Corp. and the *Voyager* at Fulham Bros.



Mate Joe Viola on Portland, Me. dragger "Vida-E. II," owned by Capt. Paul York. She was recently equipped with Model 1700 Raytheon radar by Watson's Radio Service, Boothbay Harbor, and also has Raytheon Fathometer recording and indicating units, and Raytheon 65-watt telephone.

New Bedford Scallop Festival Scheduled For August

Plans for the New Bedford (Mass.) Third Annual Sea Scallop Festival are running smoothly, the committee in charge of the August 12-14 affair sponsored by the Exchange Club of Greater New Bedford reports. A master plan has been devised to streamline the entire operations, including the speeding up of serving and increasing fire-power for cooking. Once again Marine Park will be the site for the giant festival inaugurated in 1958 to boost the industry and the city-scallop capital of the world.

This year the festival will run three days for the first time—Friday, Saturday and Sunday. In previous years the program was limited to Friday and Saturday. General Chairman is Lieutenant-Colonel Charles E. Friedman, post commander at Fort Rodman. Morris L. Finger is vice-chairman.

National promotion will be handled by Octavio A. Modesto, general manager of New Bedford Seafood Producers Association. Local and regional public relations will be directed by Charles E. Sharek, Jr. Both men have been chairmen of the festival in the past.

Maine Boats Repowered and Overhauled

Maine boats recently repowered by Harbor Supply Oil Co., Inc. include the 35' lobsterman owned by Capt. George Johnson of Long Island, and Capt. Harry McLain's 28' New Harbor lobster boat, both with Model 185 Flagship engines with 2:1 Paragon hydraulic reduction gears. Capt. Meldeau Whitton of Peaks Island has a new Flagship with 1.5:1 Paragon gear in his 34' lobster boat, and Capt. Karl Mikkelsen of Portland installed a new 100 hp. Red Wing Meteor with direct drive Paragon gear engine in his 30' craft. Capt. Walter Yattuck of Rockland purchased a D-45 Red Wing Diesel with Snow-Nabstdt 2:1 reduction gear for his 32' lobster boat.

Two of the sardine carriers operated by R. J. Peacock Canning Co., Portland were overhauled recently by Goudy & Stevens, East Boothbay. The *Sewanahka*, Capt. Preston Alley, had her bottom cleaned and painted, the fish hold bulkhead supports were strengthened, and stuffing boxes repacked. Planking and shoe replacement, and hold and deck repairs were made on the *Sylvina W. Beal*, Capt. Peter Stevens. Her forward hatch was raised, new cover made for the fish box, and fish separating screen and suction pipe installed.

Three fishing vessels have been equipped with Raytheon Model 1700 radar by Watson's Radio Service, Boothbay Harbor, Me. They are the Portland dragger *Vida-E. II*, owned by Capt. Paul York; the Gloucester, Mass. dragger *Santa Lucia*, owned by Capt. Anthony

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JULY, 1960 - NATIONAL FISHERMAN



New Haven, Conn. draggers "Restless" owned by Capt. Casper Amadio, with 6-71 General Motors Diesel; and the Waukesha-powered "Two Brothers", owned by Andrew, Gabriel and Willie Gargano.

Bertolino who is fishing out of Boothbay Harbor, and the dragger *Li Lo*, owned by Capt. Lee Reilly of New Harbor.

Watson is dealer for the entire Raytheon marine line, Apelco radio telephones, and Kaar direction finders and telephones. He recently installed a Raytheon Model 1500 Marine Pathfinder radar aboard the training vessel *Pathfinder* at the Maine Maritime Academy, Castine. The Sea & Shore Fisheries patrol boat *Hel-Cat* at Portland is getting a new 50-watt, Model AE 32 AM Apelco telephone from Watson.

The 36' lobster boat *Dorothy F.* has been repowered with a JN6 Cummins Diesel, rated 130 hp. at 2500 rpm. She is owned by Capt. Roscoe Fletcher of Criehaven, and gives a speed of 12 knots. The engine swings a 24 x 20 Columbian propeller and is fitted with Maxim silencer. The boat was built by Rockland Boat Shop in 1950.

A Model IH-240, 120 hp. Palmer engine with direct drive was recently sold by H. P. Simpson, Portland, for Capt. George Emmon's lobster boat at Cape Porpoise.

The Jonesport Packing Co. 55' sardine carrier *Mione* of Jonesport has been repowered with a 6-71 General Motors Diesel. L. Ray Packing Co., Millbridge, has a new 4-53, 120 hp. General Motors Diesel in its 35' seine boat *Harvey Bell*. Both engines were sold by Hubbs Engine Co.

Kennebec Lobster Co., operated by Arthur Tibbitts and William Plummer at Bay Point has a new Nova Scotia-built 30' lobster boat. It is powered by a 68 hp. 4DF Osco-Ford Diesel with Paragon 2:1 hydraulic reduction gear and Fernstrum grid cooler, sold by Robinhood Marina, Inc. The same type power plant has gone into Capt. Ray Brewer's 30' lobster boat at Boothbay Harbor.

New Jersey Landings Up 24 Percent

During the first four months of 1960 landings of fish and shellfish, exclusive of menhaden for reduction, at New Jersey ports, totaled 23.4 million pounds valued at \$2.0 million. Compared with the January-through-April period last year, this was an increase of 4.5 million pounds.

Landings of fish and shellfish, exclusive of menhaden for reduction, at New Jersey ports during April 1960, amounted to 7.5 million pounds valued at \$523,000. Compared with the same month last year, this was a gain of 24 percent in volume and 4 percent in value.

There was an increase in landings of surf clam meats amounting to 1.1 million pounds. Fluke landings of 513,000 pounds showed an increase of over 306,000 pounds compared with April 1959, and their value, \$78,000, was \$38,000, over that of the same month last year.

Ocean County led in volume with 3.8 million pounds valued at \$239,000. Cape May was second with 2.1 million pounds valued at \$114,000, followed by Monmouth with 678,000 pounds valued at \$51,000, and Atlantic County with 609,000 pounds valued at \$72,000.

Six Lobster Draggers at New Bedford

Six deep sea lobster draggers are working out of the port of New Bedford, Mass. The vessels are the *Shannon*, *Connie F.*, *Falcon*, *Julia DaCruz*, *Janet & Jean* and *Valiant Lady*. The first 13 catches reported 60,008 pounds valued at \$20,775.

New Bedford Fish Landings Show Rise

Landings of lemon sole and blackback flounder at the port of New Bedford, Mass. during the month of May were the greatest for that month in a decade. Statistics show May landings of the species totaled 2,174,000 pounds, valued at \$246,000, compared with the 1,359,000 pounds, worth \$140,000, landed here in May 1959.

Landings of edible fish and scallops during the month were 550,000 pounds more than fishing vessels brought to port in May a year ago. Sea scallop production continued to increase at the port. Average price for 1,946,000 pounds landed in May was slightly under 32½ cents a pound.

Bay State Marine Has Life Rafts

Bay State Marine & Equipment Co., operated by Frank J. Strazzere, at 255 Northern Ave., Boston, Mass., has been appointed sales agent in the Boston area for Seafarer inflatable life rafts. An inventory of rafts will be carried in the firm's store, with models in fiber glass stowage container and neoprene valise on display. Capt. A. J. Pedersen of Portland, Me. is U. S. distributor of Seafarer rafts, made by Dunlop Rubber Co., Ltd.

New York Landings Up 8 Percent

During the first four months of 1960, fish and shellfish landings in the Marine District of New York amounted to 15.4 million pounds valued at \$2.4 million. Compared with the same period last year this was an increase of 19 percent in volume and 11 percent in value.

Landings of fish and shellfish in the Marine District of New York during April 1960 amounted to 3.8 million pounds valued at \$506,000. Compared with the same month of last year, this was an increase of 8 percent in volume and 5 percent in value.

Scup or porgy continued to lead in volume caught with 1.7 million pounds, followed by whiting with 356,000 pounds and hard clam meats with 346,000 pounds. These three species accounted for 64 percent of the month's total catch.

Otter trawls accounted for 76 percent of the April 1960 total and 94 percent of the finfish. Dredges followed with 11 percent of the total and 58 percent of the month's shellfish catch.

EQUIPMENT and SUPPLY NEWS

New Linen Thread Nylon Gill Netting

Development of a new Nylon Gill Netting called "Tanglefin" has been announced by The Linen Thread Co., Inc., Blue Mountain, Ala. Made of continuous filament nylon on especially developed machines at Linen Thread's Blue Mountain plant, the new gill netting is reported by the company to be remarkable for its wet strength, knot retention, mesh stability, and handling qualities.

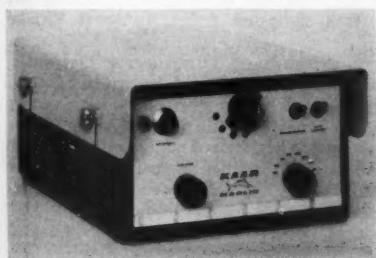
According to H. C. Johnson, manager of Linen Thread's Netting Division, "Tanglefin" represents years of Linen Thread Company research directed at perfecting the manufacture of nylon gill netting so that full benefits could be gained by fishermen from nylon's inherent advantages as a rot-resistant, non-absorbent, light-weight material of proved efficiency.

Tanglefin nylon gill netting is made in mesh sizes of from two inches to ten inches, inclusive (stretched measurement), and in twine sizes 69 through 346.

New Universal Engine Folder

A new 4-page folder covering the complete line of marine engines built by Universal Motor Co., 578 Universal Dr., Oshkosh, Wis. has just been printed. This new folder lists and illustrates all the current 2, 4, 6 and 8 cylinder engines including the two new V-8 models, Big King and Bluejacket Twin, and gives the basic specifications.

Another Universal sales brochure, devoted to marine electric plants and battery chargers, has also been published, listing and illustrating the various types and models of plants available including both gasoline and Diesel operated units.



New, 65-watt, transistorized Kaar "Marlin" marine radio telephone has 5 channels and protection against polarity burnout.

Kaar "Marlin" Transistorized Telephone

The Kaar "Marlin", a new, 65-watt, transistorized marine radio-telephone is now available from Kaar Engineering Corp., 2995 Middlefield Rd., Palo Alto, Calif. The unit comes complete with the antenna, microphone, and 4 crystals for operation on 2 channels.

The manufacturer reports the new Marlin is transistorized to the maximum level with a transistorized power supply, and an all transistor receiver, speech amplifier, and modulator.

On receive it draws a minimum amount of current — .80 amps. Only 3 tubes are used in the entire unit, and these in the transmitter portion of the equipment. A flat package, plug-in design has been used for flexibility of installation, and measures 5½" x 10" x 14". All external connections for the battery, antenna and ground plug in.

Listed among the general features of the equipment are its five channels with broadcast band reception, full protection against reverse polarity burn-out, and tube and component failure by operating these elements well below the original manufacturer's ratings. A filtered battery line eliminates electrical system interference.

Columbian Bronze Promotes Abbott

Columbian Bronze Corp. has announced the appointment of Douglas T. Abbott as vice president and assistant general manager. Abbott has served the company as chief engineer and, since 1957, as vice president for sales and engineering. Abbott's responsibilities will include coordination of the production, sales and engineering departments of Columbian, a leading manufacturer of commercial marine and pleasure boat propellers.



Douglas T. Abbott

Crowell Fiberglass Marine Motor Dome

Crowell Designs, Inc. of Point Pleasant, N. J., manufacturers of marine hydraulic steering gears, pressure water systems, bilge pumps, and D.C. motors has introduced a redesigned heavy duty motor with a fiberglass dome and brushholder assembly. Especially designed for the marine field, the new motor dome eliminates all parts normally found in the back end of a D.C. motor which could corrode, and replaces them with fiberglass. This type of construction allows for one of the largest brush area to be found in D.C. motors of comparable power in the marine field. Sealed, noise tested ball bearings are used in both ends so that the motor never requires additional lubrication.

These motors are available in all D.C. voltages and horsepower ranging from 1/8 to 1/3. The new motor dome has provisions, internally, for the installation of radio noise suppression filters and can be furnished upon special order from the factory.

Apex Marine Distributes Snow-Nabstedt

The Snow-Nabstedt Gear Corp., Hamden, Conn., manufacturers of marine and industrial gears and transmissions has recently appointed the Apex Marine and Equipment Company of Seattle, Wash. as their northwest distributor, covering all northwestern states including Alaska. As part of Snow-Nabstedt's sales organization, Apex Marine will operate under regional representative, Arthur H. Nelson, on the sale of marine reverse and reduction gears.

An increased inventory of gears and parts are being maintained by Apex and will be backed by factory trained personnel. It is expected that most marine gear models with popular reduction ratios will be stocked in Seattle at all times. These various models are also adaptable to a wide variety of engines in their horsepower range.

Clyde C. Williams Joins Gray Marine

P. C. Chamberlain, president of Gray Marine Motor Co., announces that Clyde C. Williams, formerly vice president of Chrysler Corp., Marine and Industrial Engine Division, has joined the Gray Marine organization as assistant to the president. Williams has exceptionally broad marine engine experience, and has served several terms on the board of directors of the National Association of Engine and Boat Manufacturers.

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JULY, 1960

GULF OF MEXICO

Alabama to Lease Unused Bottoms For Oyster Farming

Alabama opened bids this month for leases of non-producing oyster areas in a new program to increase production through "oyster farming". The maximum area that one individual, partnership, association or firm may lease will be no larger than 160 acres in one block or adjoining blocks. Persons leasing oyster bottoms must survey and post the area.

A map of the area, prepared by a registered surveyor of Alabama, must also be filed with the Department of Conservation. The lessee must put into practice such measures as the Conservation Department requires to insure continued growth and harvest of oysters. The oyster production program and activities must be reported to the Seafood Division Dec. 1 and July 1 each year. The leases will be for five years with an option on renewal.

A lease will give the lessee exclusive right to plant and harvest oysters within the leased area and full control of the oyster industry in the area. However, planting of oyster shells and harvesting of oysters must be done in accordance with the laws of the state and regulations of the Department of Conservation. No leases may be sublet or transferred without the written consent of the conservation director.

The lease program was set up to encourage the production of oysters in Alabama waters on bottoms that do not produce oysters now. Oyster shells will have to be planted in the leased areas to start the growth of oysters. Conservation officials have expressed hope that enough people in Mobile and Baldwin counties will take advantage of the lease opportunity for a large increase in Alabama oyster production.

Alabama Seafood Survey Begun

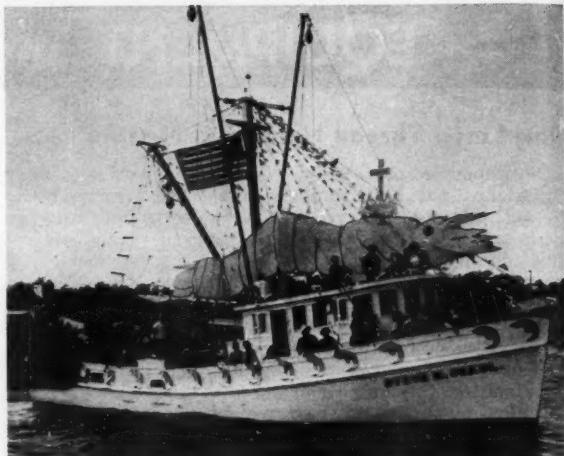
A new plan to focus attention on the importance of the seafood industry in Alabama is shaping up. George Allen, chief of the Seafood Division, said the division would begin an "economic survey" of the industry this month. The survey will include all phases of the industry, including boats, oyster shops, processing plants, retail outlets and others. Allen emphasized that names of individuals and firms will not be included in the survey. "We do not want to cause any embarrassment in any way," he said, "but we do want to get an accurate survey of the industry's economic importance."

The survey will include investments in boats, shops, nets and other equipment; insurance rates, income, expenses and the number of persons dependent on the seafood industry. Personnel of the Seafood Division will conduct the project.

The seafood chief said the federal government has "long insisted that sports fishing in the area has much higher monetary value than commercial fishing operations." Allen added, that he questioned this assumption when one large fully equipped shrimp boat may require an investment of \$70,000." Results of the survey will be used to help focus the attention of the Legislature and the public on the importance of the state's seafood industry.

Texas Extends Offshore Shrimping Limit

Offshore commercial shrimping within the 10½-mile limit in the Texas Gulf ended June 1 and will not be resumed for 45 days in accordance with a mandate issued by the Texas Game and Fish Commission. This is deemed a conservation measure to allow the young shrimp more time to mature. Bait shrimpers are an exception, as they are permitted to take up to 250 pounds of shrimp daily for bait purposes.



BEST DECORATED BOAT in annual Biloxi, Miss. Shrimp Festival and Blessing of the fleet last month was "Steve M. Sekul", 60' vessel owned by Sea Coast Packing Co. and captained by Odus Trahan.

Biloxi Holds Shrimp Festival And Blessing of the Fleet

Biloxi's fishing fleet was represented by more than 250 shrimp boats last month at Biloxi when the annual Blessing of the Fleet was celebrated during the Biloxi Shrimp Festival. The 60-footer Steve M. Sekul, owned by the Sea Coast Packing Company and captained by Odus Trahan, captured first place honors for the best decorated boat. The special blessing was intoned by Reverend Herbert Mullin as each vessel passed in review before the blessing boat Sammie Lou.

Preceding the religious ceremonies the vast shrimpboat armada passed in review before the throngs jamming the dock and the seawall forming at the seaward beacons to single-file back into the harbor. A wreath honoring the deceased fishermen was dropped from a Coast Guard plane.

Capt. John Mavar, Sr., native of Yugoslavian Dalmatia, and Biloxi pioneer seafood packer and fisherman, reigned as 1960 Shrimp King. Mavar, now retired, keeps active with a daily visit to the Mavar Shrimp and Oyster Company, Ltd., now operated by his four sons, John, Jr., Sam, Nick and Victor. The Biloxi Shrimp Festival got under way at the Slavonian Hall in Biloxi where judges, press and visitors were feted at a six-dish shrimp buffet. Immediately following this contestants were reviewed and Miss Emily Germanis, Biloxi, was selected as Queen.

Mississippi Planting 80,000 Barrels Of Oyster Shell on State Reefs

The Mississippi Marine Conservation Commission began a program of bedding 80,000 barrels of oyster shells on state reefs recently under the direction of Marine biologist William Demoran. The initial load of 4,000 barrels of shells were deposited in Bay of Biloxi on the Biloxi tong reef.

The shells were towed on barges by Inspection boat Uranus and upon reaching the bedding area were unloaded with forced water pressure which insured an even distribution on the bottoms. Nineteen more bargeloads of shells will be taken to existing Mississippi oyster reefs for planting, at no cost to the Commission.

Cooperating agencies are City of Biloxi and County of Harrison in addition to factorymen and individuals. Mike Sekul and Charles Weems, both members of the Commission and both factorymen, expressed great optimism over the plantings, the first in several years undertaken by the State agency. In previous years such shell planting has cost an average of 35¢ per barrel. Inspectors supervising the work are George Williams, Johnny Wilson and Alphonse Dorn.

Landings Up at Mississippi Ports

Shrimp landings at Biloxi and Pascagoula, Miss. during April amounted to 20,000 pounds. The Pascagoula catch for that month was 13,000 pounds and the Biloxi catch was 7,000 pounds. The total catch for the two ports was greater than for the preceding month, when it was 12,000 pounds, and greater than the catch for April a year ago, when it was 16,000 pounds.

For the same month, Biloxi reported oyster landings of 26,500 pounds, compared with 22,000 pounds for March and a catch of 9,800 pounds for April 1959. Landings of salt water fish at the two ports were 190,000 pounds in April. The month before, the catch was 133,000 pounds, and in April a year ago, it was 123,000 pounds. Pascagoula and Biloxi reported April blue crab landings of 144,000 pounds, twice the size of the 72,000 pound catch reported in March, but less than the 230,000 pounds caught in April 1959.

Louisiana Releases Marked Shrimp

The Louisiana Wild Life and Fisheries Commission, Oysters, Water Bottoms and Seafood Division, has recently initiated a shrimp marking program. This program is part of a cooperative effort of the Gulf States Marine Fisheries Commission and the U. S. Fish and Wildlife Service to determine patterns of movement of certain species of shrimp from the nursery ground, located in the estuarine areas along the Gulf Coast, to the offshore fishery where these shrimp are captured by the commercial shrimpers, according to the Commission Director.

The Commission caught and marked with a green biological stain, 12,000 juvenile Brown shrimp. These shrimp were taken, marked and released in the western portion of Mississippi Sound.

The program will contain two additional areas where juvenile shrimp will be stained and released. These areas are the Barataria Bay Estuarine Composite and the Vermilion Bay Estuarine Complex. Here again, over 10,000 Brown shrimp will be marked and released, at each site, with hope turned toward a good percent recovery.

A reward will be offered for each marked shrimp returned. The returns should be of sufficient quantity to yield valid data which will be utilized in formulating management plans to protect, promote and prolong one of our most valuable marine resources, the Chief, Oysters, Water Bottoms and Seafood Division, said.

Gulf Landings Up For First 5 Months

Seafood landings at ports in the Gulf states during the first five months of 1960 showed an increase over the 1959 production for the same period. Head off shrimp landed in 1960 totaled 18,700,000 pounds, a 6 percent gain over the 17,650,000 pounds taken in 1959. The 500,000 barrels of oysters for 1960 was a 51 percent gain over the 330,000 barrels produced in 1959.

The 1960 catch of 4,400,000 pounds of finfish was a 16 percent increase over the 3,800,000 pounds caught last year. Blue crabs for the 1960 period totaled 3,400,000 pounds, a 4 percent gain over the 1959 total of 3,300,000 pounds.

Texas Shrimp Landings Up 47 Percent

Shrimp landings on the Texas coast during May showed an increase of 47 percent over the same month in 1959 and slightly above the April landings, according to C. E. Nickerson, U. S. Fish and Wildlife Service statistician.

Florida trawlers are coming in to Texas now, and shrimp processing plants are busy with preparations for the summer shrimping season. Large catches of seabirds were taken in the western Gulf, but were not kept since they were too small for commercial use.

Aransas Pass recently acquired its second blue crab processing plant. That area produced 120,900 pounds during the month. Matagorda area had 100,000 pounds, and Galveston had 3,400 pounds.

BOAT CATCHES

For Month of June

Hailing fares. Figure after name indicates number of trips.

BOSTON (Mass.)

Agatha (3)	84,100	Nautilus (2)	98,500
Agatha & Patricia (3)	141,200	Nellie P. (1)	13,800
Alphonso (3)	19,100	New Star (2)	220,000
Annie & Lucy (5)	72,200	Newton (2)	217,800
Arlington (3)	342,500	Notre Dame (4)	117,000
Atlantic (3)	219,000	Olympia La Rosa (4)	172,500
Baby Rose (1)	49,400	Pam Ann (3)	213,500
Bonaventure (3)	149,500	Patty Jean (2)	181,700
Bonnie (3)	284,000	Phantom (2)	152,800
Buzz & Billy (3)	139,300	Philip & Grace (3)	197,800
Cambridge (1)	112,000	Pilgrim (3)	175,500
Caracara (3)	139,800	Puritan (3)	132,200
Carmeia Maria (1)	11,100	Racer (2)	269,600
Carmen & Vince (3)	169,400	Red Jacket (3)	353,400
Clipper (3)	123,100	Rosa B. (2)	171,500
Columbia (3)	97,800	Rosie (5)	72,700
Comet (3)	219,700	Rosie C. (3)	120,800
Ethelena (3)	156,800	St. Angelo (3)	67,800
Flying Cloud (2)	229,200	St. Joseph (2)	76,000
Four (2)	136,800	St. Marco (3)	124,700
Glenn (3)	177,800	St. Rosalie (1)	33,300
Hazel B. (3)	140,400	San Calogero (3)	31,500
Heroic (3)	167,500	Sant' Antonio II (2)	37,900
Joseph & Lucia (1)	56,800	Terra Nova (3)	185,800
Leonard & Nancy (3)	69,800	Texas (2)	103,000
Little Chuck (3)	56,100	Thomas D. (3)	123,400
Magellan (3)	135,900	Thomas Whalen (2)	108,500
Manuel F. Roderick (3)	170,900	Villanova (2)	56,500
Margaret Rose (2)	68,600	Weymouth (2)	174,800
Maria Del Socorro (5)	43,400	Wm. J. O'Brien (2)	191,000
Mary & Joan (2)	146,000	Winchester (2)	225,800
Michigan (3)	315,400	Wisconsin (3)	345,300
Mother Frances (4)	139,800	Yankee (3)	27,800

Scallop Landings (Lbs.)

Florence & Lee (2)	36,200	John Michael X (2)	31,200
Hilda Garston (1)	27,500	Laura A. (1)	15,200
		Lauren Fay (1)	32,500

GLoucester (Mass.)

Admiral (3)	187,000	Malolo (3)	219,000
American Eagle (4)	224,500	Manuel P. Domingoes (2)	310,000
Andrea G. (1)	120,000	Marianna II (2)	117,500
Ann & Marie (1)	27,000	Mary Ann (6)	418,000
Atlantic (3)	37,000	Mary Jane (1)	200,000
Ave Maria (2)	16,000	Mary Rose (2)	300,000
Baby Rose (1)	50,000	Morning Star (2)	53,500
Blue Waters (1)	160,000	Natale III (4)	294,500
Carlo & Vince (4)	45,500	Ocean Spray (3)	211,000
Carmela Maria (1)	20,000	Ocean Wave (3)	305,000
Charlotte M. (2)	260,000	Olympia (6)	465,000
Cigar Joe (4)	165,000	Our Lady of Fatima (1)	140,000
Curlew (2)	310,000	P. K. Hunt (1)	125,000
Dolphin (2)	245,000	Powhatan (2)	42,000
Eagle (5)	762,000	Regina Maria (2)	213,000
Edith L. Boudreau (3)	295,000	Rhode Island (6)	375,500
Emily H. Brown (3)	352,000	Rosalie S. (4)	180,000
Estrela (1)	200,000	Rose & Lucy (4)	205,000
Evelina M. Goulart (2)	200,000	Rosemarie (3)	169,000
Evelyn L. Brown (1)	235,000	Rosie & Gracie (7)	282,000
Flow (1)	230,000	St. Cabrini (6)	353,500
Frances R. (4)	148,000	St. Joseph (1)	38,000
Gaetano S. (3)	372,000	St. Mary (5)	108,500
Golden Eagle (2)	270,000	St. Nicholas (2)	270,000
Grace & Salvatore (4)	458,000	St. Peter (6)	300,500
Holy Family (2)	320,000	St. Peter III (4)	203,500
Ida & Joseph (6)	458,000	St. Rosalie (3)	72,000
Immaculate Conception (7)	415,500	St. Terese (2)	114,000
J. B. N. (7)	482,500	St. Victoria (1)	20,000
J. B. Junior (1)	160,000	Salvatore & Grace (4)	246,000
Jennie & Lucia (4)	245,000	Sandra & Jean (7)	360,500
Joseph & Lucia (2)	320,000	Santa Maria (3)	255,000
Joseph S. Mattos (2)	325,000	Sea Queen (3)	162,000
Judith Lee Rose (1)	280,000	Sebastian C. (5)	347,000
Kingfisher (2)	395,000	Serafina N. (3)	189,000
Lady of Good Voyage (3)	300,000	Seranina II (6)	299,000
Lady of the Rosary (2)	85,000	Sunlight (1)	160,000
Little Flower (3)	118,000	Theresa M. Boudreau (2)	415,000
Louise (1)	120,000	Tina, B. (3)	300,000
Magnolia (2)	365,000	Villanova (2)	445,000
		Vincent N. (6)	403,500
		Virginia Ann (3)	34,000
		Wild Duck (3)	435,000

NEW BEDFORD (Mass.)

Adventurer (4)	67,500	Lorraine III (2)	43,300
Agda W. (2)	50,500	Lynn (2)	18,400
Althea (3)	68,000		
Annie Louise (4)	42,800	Major J. Casey (3)	75,000
Annie M. Jackson (2)	61,000	Malvina B. (2)	48,000
Arnold (1)	10,000	Marie & Katherine (2)	59,300
Austin W. (2)	37,300	Martha E. Murley (2)	36,000
Barbara M. (3)	70,000	Mary E. D'Eon (3)	90,500
Brant (3)	83,500	Mary J. Landry (3)	72,000
Cap'n Bill II (3)	116,500	Mary Tapper (3)	94,400
Capt. Deebold (2)	52,500	Midway (3)	112,800
Carl Henry (3)	91,500	Miriam A. (3)	108,900
Catherine & Mary (2)	62,300	Molly & Jane (3)	70,300
Charles E. Beckman (4)	47,600	Nancy L. (1)	16,000
Christina J. (3)	95,500	North Sea (3)	83,000
C. R. & M. (2)	37,200	Pauline H. (3)	210,500
Curlew (1)	7,700	Phyllis J. (2)	26,500
Elizabeth N. (3)	98,500	Roann (2)	35,300
Eugene H. (3)	51,300	Robert Joseph (1)	20,400
Fairweather (1)	8,100	Roberta Anne (3)	78,100
Falcon (3)	96,300	Rush (3)	97,100
Friendship (1)	29,800	Sea Gold (3)	87,500
Gannet (2)	81,000	Sea Ranger (1)	28,200
Glen & Maria (1)	34,500	Shannon (1)	17,400
Growler (2)	51,400	Skipjack (2)	74,500
Harmony (3)	62,600	Simlynn (3)	79,500
Hope II (3)	87,000	Solveig J. (3)	140,600
Huntington Sanford (1)	18,300	Stephen R. (3)	78,700
Invader (3)	108,900	Sunbeam (3)	87,500
Ivanhoe (3)	49,200	Susie O. Carver (3)	30,500
Joan & Ursula (2)	46,000	Teresa & Jean (2)	95,100
John G. Murley (2)	105,100	Two Brothers (3)	36,500
Julia DaCruz (3)	90,550	Valliant Lady (3)	90,100
Katie D. (3)	161,500	Val T. (3)	83,200
Kelbarsam (3)	38,500	Venture I (3)	104,200
Libby (3)	93,700	Viking (3)	139,000
Linda & Warren (2)	24,200	Whaler (2)	69,800
		Whaling City (2)	55,800
		William B. (1)	8,000
		Winifred M. (1)	7,000

Scallop Landings (Lbs.)

Aloha (3)	35,800	Lillian B. (2)	25,400
Alpar (2)	22,200	Linus S. Eldridge (3)	33,600
Amelia (2)	23,400	Louis A. Thebaud (1)	17,000
Babe Sears (2)	23,200	Lubenray (2)	23,400
Baltic (3)	34,600	Malene & Marie (3)	37,900
Barbara & Gail (2)	24,300	Mary Ann (3)	35,600
Bright Star (3)	34,600	Mary J. Hayes (3)	34,900
Camden (4)	43,800	Midnight Sun (3)	35,900
Carol & Estelle (2)	23,800	Nancy Jane (3)	33,600
Catherine B. (3)	36,000	Neptune (3)	36,800
Catherine C. (4)	46,700	New Bedford (3)	37,200
Charles S. Ashley (3)	36,400	Newfoundland (2)	25,400
Clipper (3)	34,100	Nooreen (3)	36,600
Dartmouth (2)	24,400	Pearl Harbor (3)	25,400
Debbie & Jo-Ann (3)	36,800	Pelican (3)	35,600
Edgartown (3)	35,800	Porpoise (2)	22,400
Fairhaven (3)	36,800	Prowler (3)	36,600
Flamingo (3)	37,200	Richard Lance (3)	33,600
Fleetwing (3)	34,600	Ruth Lea (3)	34,600
Florence & Lee (1)	15,200	Ruth Moses (2)	24,800
Florence B. (3)	36,400	Sandra Jane (3)	35,000
Geraldine (4)	52,800	Sippican (3)	36,000
Hilda Garston (1)	13,200	Snoopy (3)	35,800
Ike & Jenni (3)	38,600	Stanley B. Butler (3)	35,600
Jerry & Jimmy (2)	20,900	Stanley M. Fisher (3)	35,000
Josephine & Mary (3)	36,000	Sunapee (3)	34,400
Kingfisher (3)	36,600	Tocsin (2)	22,400
Laura A. (1)	12,200	Ursula M. Norton (4)	50,000
Lauren Fay (2)	24,800	Villa Riall (2)	24,400
		Vivian Fay (3)	36,000
		Wamsutta (1)	11,200

WOODS HOLE (Mass.)

Angenette (2)	2,000	Lynn (1)	3,200
Angle & Myrtle (3)	57,800	Madelaine (2)	6,900
Arnold (1)	8,000	Madonna-di-Siracusa (4)	17,700
Bernice (4)	17,100	Mildred & Myra (2)	52,100
Cap'n Bill III (4)	27,000	Minkette (2)	15,000
Carib (4)	7,400	Morning Star (5)	14,300
Clifton (1)	3,200	Nellie M. Stanley (1)	9,900
Curlew (2)	13,200	Phyllis J. (1)	7,500
Dauntless (8)	153,400	Priscilla (1)	5,800
Dorothy & Mary (10)	364,300	Pvt. Frank T. Kessler (3)	49,800
Driftwood (1)	1,400	Rosemary R. (1)	6,600
Grayling (2)	33,300	Ruth (1)	1,100
Irene & Walter (1)	2,200	Ruth W. (1)	4,000
Janet Elise (4)	33,200	Spare Time (3)	2,300
Jeahah (9)	11,400	Valarie M. (1)	2,100
Joyce Ann (1)	20,300	Viking (2)	15,000
Kathy Dick (1)	600	Whitestone (2)	37,900
Little Jeff (1)	5,000	Winifred M. (1)	2,400
Little Lady (1)	1,700		

Outboard Conference Stresses Fishing Craft Modernization

The mechanization of small fishing craft is a vital factor in the progress of developing countries, according to fisheries and technical specialists who spoke at the International Economic Conference on Small Craft for Fisheries and Transportation, held last month at the Waldorf-Astoria hotel in New York.

The conference was sponsored as a public service by Outboard Marine International S. A., Nassau, Bahamas, and its parent company, Outboard Marine Corp., Waukegan, Ill. to encourage the international exchange of technical and economic data on small boat mechanization and the modernization of fishing craft.

Officials from 37 countries and three international organizations, heard Jan-Olof Traung, chief of the Fishing Boat Section of the Food and Agriculture Organization (FAO) and a leading naval architect, declare that "mechanization is the key to development" and that its object is "to produce more food for a hungry world."

Traung pointed out that the FAO is about to launch a "Freedom-from-Hunger Campaign" to extend from mid-1960 to 1965, with a World Food Congress to be held in 1963. "The purpose is to seize upon the opportunities offered by modern science for producing sufficient food of the right kind for everyone and to increase the purchasing power of millions of people with low incomes who cannot buy the food they need," he declared.

Traung, an international authority on fisheries development, called upon the less-developed countries themselves to exert the major effort needed to bring about the success of this worldwide campaign. He emphasized the need for external assistance to back up this program and

PORTLAND (Me.)

Alice M. Doughty II (4)	197,000	Mary & Jennie (7)	77,000
Ariel (4)	68,000	Mascot (5)	25,000
Bobby & Jack (3)	370,000	Medan (2)	615,000
Bois Bubert (3)	36,000	Ocean Life (1)	350,000
Challenger (8)	87,7000	Quincy (2)	400,000
Courier (2)	337,000	Rebecca II (4)	39,000
Crescent (9)	132,700	Resolute (3)	200,000
Dorchester (2)	415,000	St. George (2)	400,000
Dorothy & Ethel (2)	50,000	St. Joseph (4)	52,000
Elinor & Jean (3)	78,000	Sea Hawk (2)	245,000
Gulf Stream (1)	185,000	Surfman (7)	49,000
Helen S. (4)	42,000	Theresa R. (2)	290,000
Jackie B. (4)	91,000	Vagabond (3)	132,500
Joyce & Marie (3)	7,500	Vandal (3)	286,000
Lawrence Scola (4)	31,200	Vida E. II (8)	119,000
Lawson (3)	138,000	Voyager (2)	52,000
Marie H. (1)	6,000	Wawanock (1)	250,000
Maris Stella (1)	180,000	Winthrop (1)	150,000
Mary & Helen (4)	29,000		

Scallop Landings (Lbs.)

Abram H. (2)	30,000	Rita, B. (2)	27,000
Francis L. MacPherson (1)	15,000	Sylvester F. Whalen (1)	15,000

ROCKLAND (Me.)

Angie & Florence (4)	235,000	Louise G. (4)	88,700
Araho (3)	379,000	Mabel Susan (5)	133,000
Brighton (2)	380,000	Ocean (2)	600,000
Elin B. (5)	271,500	Squall (1)	300,000
Ethel B. (4)	10,000	Storm (2)	600,000
Flo (4)	183,500	Surf (1)	300,000
Helen Mae II (4)	216,500	Tide (2)	580,000
John J. Nagle (1)	130,000	Wave (1)	210,000
Little Growler (5)	308,000		

Scallop Landings (Lbs.)

Pocahontas (2)	22,000
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NEW YORK

Beatrice & Ida (2)	21,200	Maridow (2)	22,000
Carol-Jack (3)	36,600	- Muskegon (2)	20,700
Enterprise (3)	36,600	Norseman (3)	32,000
Felicia (3)	35,200	Phyllis J. (3)	33,200
Karina T. (2)	22,000		

declared that the campaign would be waged on "the Information and Educational Front, the Research Front and the Action Front."

The mechanization of fishing fleets has already been very successful in many developing countries in increasing the food supply from the water resources of the area, he pointed out. In support of his statement, Traung offered a table showing the comparison of catches and proceeds from outboard mechanized and non-mechanized boats in Ceylon, prepared from a survey made in 1957. The figures showed that, during the same period, the mechanized fleet produced 3,190 pounds of fish, while the non-mechanized craft produced 203 pounds.

Philip Rhodes, internationally known naval architect and marine designer, called for improvements in the design of small work boats. "There was a time when I felt that the best boat for any particular job in any particular locality was the type developed on the spot. Among the infinite variety of types throughout the world, there are instances where this is true, but such a coincidence is indeed rare. The fact that occasionally this is so is seldom the result of accident, but usually bears some relation to the local tools and skills and available material," said Mr. Rhodes.

The naval architect cited three basic designs which could lend themselves to the construction of simple, economic craft adaptable to varied conditions. These are a double-ender, which can be built of either marine plywood or sawn planks up to 30 feet and can negotiate moderate surf without difficulty; a beamy punt type, which can range all the way from seven to sixty feet, can transport heavy loads on sheltered waters and can also be built of plywood or planked lumber; and a skiff, with enough space for a bunk and stove, for the single-handed fisherman.

Rack Oyster Culture

(Continued from page 7)

damage; (3) equipment for the suspended method represents money investment, (4) labor involved in suspended culture constitutes a substantial cost.

Different Types of Raft Culture

Modifications of the raft culture method are the "long-line method", a non-rigid type of raft; the "rack method", used for seed collection and commercial growing in shallow waters (6-15 ft.); and the "umbrella method", a modification of the "rack". Umbrella culture, a much-used, low-investment method in Japan, utilizes a single center-pole projecting 1 to 2 ft. above the bottom plus 16 "growing strings" (with 8 in. bamboo spacers) 7 ft. long, arranged radially like the ribs of an umbrella, between the center pole and stakes driven into the bottom.

Because the 16 strings are arranged like guy wires, the umbrella method is useful in areas where wave damage is a problem. The method was developed to utilize shallows which ebb dry for not more than 3 hours per tide. Drill shields are easily applied to the umbrella structure.

The rack method consists of vertical poles, 6 to 13 ft. apart, usually arranged as parallel rows in water 6 to 15 ft. deep. Horizontal poles which are fixed to the tops of the vertical poles, support seed shell strings (no bamboo spacers) or growing-strings (8 in. bamboo spacers), either hanging free (tied only at upper end) or looped (both ends tied to the horizontal pole). The latter system of hanging is for shallow water areas.

An important use of the rack method is the production of high quality seed oysters at 6,000 to 10,000 spat per bushel. Seed production differs from ordinary rack culture in that 5 ft. seed-shell strings are usually laid side by side and horizontally, on racks which are placed at such a level that low tide leaves the shells just out of water. Vertical rack seed culture uses the same size seed-string draped over a single horizontal pole so that half of the shell is dry at low water.

Export oyster seed is "hardened" by removing the seed-

77,000
25,000
615,000
350,000
400,000
39,000
200,000
400,000
52,000
245,000
49,000
290,000
132,500
286,000
119,000
52,000
250,000
150,000

27,000
15,000

88,700
133,000
600,000
300,000
600,000
300,000
580,000
210,000

22,000
20,700
32,000
33,200

Operation from boat's battery adds extra power, permits use of synchronous AC motor for constant scanning speed.

MS-660 exclusively features: Intensity switch for added flash brilliance under bright viewing conditions —Pulse control to change pulse width for better response on certain bottom conditions. Unit has two, extra-large dial scales—is calibrated 0-600 feet and 0-100 fathoms, tilts on gimbal mount for best visibility. High power transducer is durable cast bronze, mounts on keel of boat, uses new kind of packing gland for positive water-tight seal.

325⁰⁰

SUGGESTED LIST PRICE Write for further information

Apelco SOUTH SAN FRANCISCO, CALIFORNIA

strings after the baby oysters have attached to them, to even higher racks where the oysters have water only at middle and high tides. The oysters thus "hardened" can survive several weeks out of sea water provided they are kept cool and damp.

Suspended Culture in Maryland

When considering the use of suspended oyster culture in the Maryland Chesapeake Bay, it should be remembered that the Japanese use a different oyster (the *Gigas*, or Pacific oyster, as opposed to the Virginica, or Eastern U. S. oyster). Therefore some differences in production may be expected. First, the Eastern oyster will probably take 15 to 18 months to mature when suspended. Secondly, Japan has limited oyster culture space and desperately needs food, whereas Maryland has 150,000 acres of unused, barren natural oyster beds.

A third difference is that the cost of U. S. labor is 10 times as great as that of Japanese labor. But, oysters in this country currently sell for about \$4.00 per bu., compared with the Japanese price of 50¢ per bu. Therefore, labor cost is probably not as adverse as it might seem at first glance. The fourth difference; hazards to navigation, construction, operation and anchoring details; is merely a technical problem and can be easily solved. Fifth, the key to Maryland use of suspended culture is purely economic.

In the opinion of Staples, as a professional engineer, the suspended culture method will justify the labor and money invested, and make a good profit. The following cost figures prepared by Staples shows his reasoning:

One oysterman can operate four rafts which cost about \$400 each and are useable for 4 years. One raft will carry a maximum of 800 bushels of seed or market oysters. A seed-raft (or rack) requires 800 seed-strings costing about \$1.00 per bushel of strung shell, and will produce a crop worth \$1600 (\$2.00/bu. of 6,000 spat/bu. seed) at the end of three months. Such a crop will be ample to "seed" 6 growing rafts.

A growing raft can produce 800 bushels of market oysters in 12 to 15 months (using 3 month old seed), worth about \$3,000. The cost to "seed" the growing-raft with growing-strings costing about \$3.00/bu. works out to about \$400 per raft. Since one man can operate 4 rafts, his first crop will cost roughly \$1600 for 4 rafts, \$800 for seed-strings, \$600 to seed the 4 rafts using his own seed, and \$650 to harvest and run the oysters to market.

The market crop will sell for about \$12,000. Cash outlays listed previously include the man's own labor, as seen from an investor's viewpoint. The cost-sale spread leaves \$8,000 profit—for less than 6 months work. A waterman could expect more since he would supply the labor.

Loads Imposed by Fishing Gear

(Continued from page 8)

son recordings showed a marked decrease in peak-to-peak variation as the warp-to-depth ratio was increased. Between the limits of 3:1 and 5.3:1 warp-to-depth ratio, there was no very marked change in the horizontal component of trawl drag or SHP at constant rpm. The sag of the wire below the straight line given by the warp-depth ratio increases but the actual angle of declination appears only to decrease towards a limiting value. At 67 fm. depth the limiting value of declination was 19° when at 5.3:1 the sag had risen to 8°.

It is not a rare thing to see mistakes made in ship construction, and more particularly in ship conversion, where a little knowledge or appreciation of the angle of warp declination would have enabled the after gallows and towing block to be positioned sufficiently far apart so that the warps do not work in the slip hook.

Effect of Deep Water

It is known that trawling in deep water imposes greater loads on ship and engine. Facts about the magnitude of the loads seem to be few. Theoretical estimates of the drag

of the increased length of trawl warp can be made but there is not yet sufficient practical data against which to check these estimates.

Recently when *Explorer* was over deep water the opportunity was taken to make some drag measurements. The measurements were made with 600 fm. of warp at 200 fm. depth and the same net was in use. In this case 6 tons of warp are out, and even in water this weighs 4½ tons. The greater the declination of the warp, the greater is its drag per unit length.

In principle, the less able a ship is to develop the necessary thrust to straighten the sag in the warps due to their weight, the more heavily it is penalized. A discrepancy in towing speed between an under-powered and an adequately powered vessel will be more noticeable in deep water than in shallow.

Tests Made on Smaller Vessel

Common requirements for the smaller, *Mara*-type vessel are towing a small otter trawl made of medium gauge twine as would be done for whitefish on rough ground, and towing a large Wing trawl made of lightweight nylon such as that used for herring. The first set of tests was made at depths between 20 and 33 fm. with 100 fm. of 1½ in. circumference wire, the second set at 50 fm. with 250 fm. of wire. When whitefish trawling, normal engine speed would be between 500 and 550 rpm. Herring trawling is done as fast as is reasonable and the resulting figures were therefore higher than when dragging for whitefish.

Comparison of test figures indicates that for the small trawler the available engine power is much more fully utilized when towing, than for the large boat. The large trawler appears to make somewhat better use of the actual engine power in that a higher percentage of it is transmitted to the fishing gear, a point in favor of a big screw turning slowly. The lightweight nylon trawl towed by the small trawler is not very different in fishing size from the heavy trawl towed by the Arctic trawler.

Warp Tension and Winch Hauling Speed

Measurements of warp tension and winch hauling speed were made on *Explorer* in good weather and, though representative of the power developed by the winch, they do not represent the greatest warp tensions ever met. The warp tension was measured in the after warp only and it is assumed that the tension in the fore warp is the same for the purpose of calculating winch horsepower.

However, steaming ahead at 80 rpm. but with 10° starboard helm as she came round, the tension in the after warp rose to 5.5 tons with the winch at full throttle and heaving at 244 ft. per min. This represents 182 bhp. at the winch. When heaving over the broadside with the ship stopped, warp tension fell to 4.4 tons while the hauling speed rose to 390 ft. per min., representing 234 bhp. at the winch.

Information on coming fast and warp tensions in rough weather is available in data collected on *Explorer*'s predecessor, an old-fashioned trawler of 590 hp. The old *Explorer*'s trawl load was about 3 tons at normal towing speed. On coming fast and with the winch heaving very slowly the tension in the after warp alone rose to 4.6 tons. Another record shows that on heaving up over the broadside in a moderate sea and force 6 to 7 wind the tension in the after warp varied from 1.4 to 2.8 tons.

It seems reasonable that, if these figures are scaled up or down in proportion to the mean trawl load, they would give the sort of figures to be expected on bigger or smaller trawlers; but the unexpected is also liable to happen and since it is not unknown for one of the warps to snap, much higher warp tensions must sometimes occur.

Perhaps the most dangerous situation is having to heave up over the broadside in bad weather with the trawl fast on the bottom and in a strong tide. A winch with dog clutches would tend to jam under the heavy load and could add to the difficulties.

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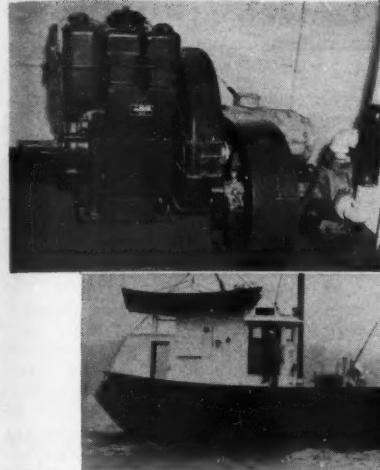
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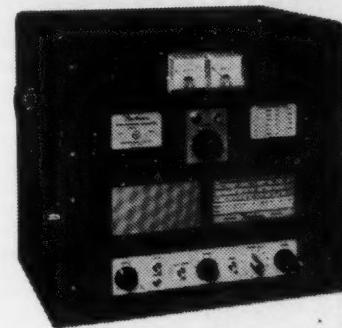
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Marine Resources Operations

(Continued from page 9)

rials for artificial reefs and it appears destined for success. One of the most successful new projects is the special projects section in Southern California, a one-man program set up to handle the multitude of day-to-day problems which do not fit into any of the long-range projects. In the past, the only way of coping with them was to interrupt someone who was working on a continuing study. A similar position is scheduled for Northern California in 1960-61.

Finally, in Southern California, a two-man sportfish staff is concerned with the compilation and interpretation of statewide party boat records. These men are also carrying out a biological study of the halibut.

To carry out MRO's duties and responsibilities requires over a hundred permanent employees, plus seasonal help, falling into four general groups. One group is concerned with administration, including the library, a business services unit, the secretarial staff and the janitorial staff.

The second unit is the biostatistical group, with 27 employees, including three biologists, which processes all catch records and is equipped as well to handle the statistical and mathematical problems presented to them by the biologists. The third big group comprises the vessel crews—27 men in all. There are four research vessels, two of them, 100 feet long, are capable of extensive cruises, a third is a 50-footer and the fourth is a 26-foot diving tender.

The fourth group includes a staff of 35 professional marine biologists and their eight assistants, to carry out research studies and performing management work.

The total budget of MRO for 1960-61 is about \$1,066,500 out of the total Fish and Game Department budget of 12.6 million. This includes some federal aid money and it includes some money for the Marine Research Committee, but basically it is Department of Fish and Game

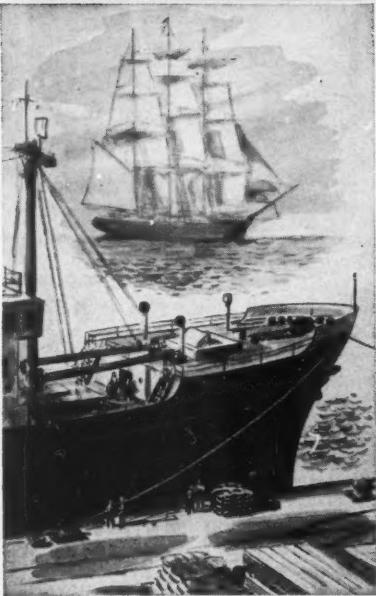
funds, money sportsmen pay for their angling licenses and commercial interests pay through taxes and their licenses.

Marine Research Committee money comes from a special tax on sardines, mackerels, anchovies, herring and squid and forms a fund separate from the Fish and Game Preservation Fund. Its contribution to MRO is relatively small—\$28,000 in 1960-61. The \$62,000 in federal funds which come through the Dingell-Johnson Act represents federal taxes on sportfishing equipment and are expended only on sportfishing projects. In addition to the \$1,066,500 next year about \$1,000,000 will be spent on marine patrol, and Sacramento headquarters marine activities, including salmon investigations. This adds up to about \$2,000,000 which the department proposes to spend on management of and research on California's marine resources in 1960-61.

At present a large part of the money is derived from sports sources although that has not been true over the history of our ocean fisheries. Estimates of revenue for 1960-61: show \$575,000 from commercial sources, and about 1.2 million dollars from sportsmen, if a quarter of the sports license should be attributed to ocean angling effort. This is a total revenue from all sources of about 1¼ million dollars.

What does the future hold in marine work? Many feel there will never be enough money or enough qualified people to do the things that could or should be done in ocean research. There are, however, a few areas which do stand out and deserve attention. These include studies of the effect of marine pollution, further studies of all phases of ocean sportfishing, measuring more accurately the amount of fishing effort in the ocean, and a very probable expansion of habitat development work when the research phase is finished. These phases must be followed in all fisheries by an understanding of their dynamics—(knowledge of what triggers changes in their size and distribution) is necessary.

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GREAT LAKES

Michigan Approves Change In Fishing Regulations

Five changes in the commercial fishing regulations requested by the Michigan Fish Producers Association were approved by the Michigan Conservation Commission at its meeting at Higgins Lake, Mich., earlier this month. The commission, following the recommendations of the Fish Division and the Field Administration Division of the state conservation department dismissed seven other proposed changes.

The commission did agree, however, to consider further one proposal that the Fish and Field Administration divisions had placed on their "not recommended" list.

The five regulation changes, will 1. provide for use (under special written permit) by licensed commercial fishermen gill nets with meshes less than $2\frac{1}{2}$ inches extension measure for taking chubs, herring, alewife, and smelt and other such species as may be designated by the director of conservation in such waters and during such times and under such conditions as the director of conservation may prescribe. (In those waters of southern Lake Michigan where trawling for these so-called "industrial fish" became legal in June is the region where the change will be legal, the commission ruled.)

2. Shorten the closed season on whitefish in Lake Michigan and Lake Huron by 15 days to begin on Oct. 15 instead of Oct. 1. 3. Reduce the legal minimum size of catfish from 17 to 15 inches, except in Lake Erie, where the legal minimum will be dropped from 15 to 14 inches, and be sold only at docks on or along Lake Erie. 4. Eliminate the closed season on black crappie or calico bass in Lake Huron. 5. Change the season on yellow perch in Green Bay, making the closed season April 15 to May 20 instead of April 25 to June 1, which now applies to Lake Michigan.

The commission agreed to study further the request of commercial fishermen to permit setting of trap nets for lake trout and whitefish in depths up to 100 feet, instead of 80 feet as the regulation now in force reads. Both the Fish and Field Administration divisions have said they are opposed to such a change.

New Lake Erie Explorations

The M/V Active recently completed the second in a series of cruises scheduled for Lake Erie, when the vessel docked at Erie, Pa. Erie will be the new permanent base of operations for the eastern Great Lakes.

Extensive echo sounding operations conducted from Vermilion, Ohio, to Erie, Pa., failed to locate any large concentrations of smelt. These results were anticipated on the basis of previous records during this time of year in Lake Erie.

Trawling was only carried out in restricted areas where echo tracings gave sufficient indication that commercial quantities could possibly be harvested. These half-hour tows generally caught from 90-130 pounds of medium (15-20 per pound) sized smelt. Surface temperatures in the open lake ranged from 55°-68° F.

The M/V Active will be laid up several weeks for badly needed repairs which have been long overdue.

During the first cruise, held the month before, 15 exploratory trawl tows were completed in the 3 to 10 fathom depth range using a 50-foot two-seam balloon trawl equipped with a $1\frac{1}{2}$ -inch mesh cod end.

Catches up to 200 pounds of smelt were made per tow over the entire area. The majority of the smelt in this area were 16 to 20 to the pound. Several tows made north of Lorain, Ohio produced catches of smelt, 9 to 10 to the pound. Commercial quantities of yellow perch were taken in trawling operations completed off Lorain.

Wisconsin Walleyes For Commercial Fishing

The Wisconsin Conservation Congress, an advisory body of the Wisconsin Conservation Commission, recently voted unanimously to recommend the placing of walleyes on the commercial fish list in all Lake Superior waters except those bounded by bays and reserve waters.

The Congress also recommended that the season for setline fishing on the Wisconsin River be opened as far north as the Sauk City dam. The recommendations of the Congress are expected to be acted on by the Conservation Commission in a July meeting.

Watching Lamprey Closely

Lamprey control results on Lake Superior are being watched closely this year to see if the lamprey population in the lake is on the defensive, according to C. W. Threinen, administrative assistant for the Wisconsin Conservation Dept.

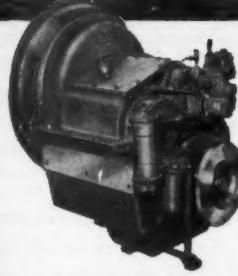
He noted that streams with significant lamprey runs have had weirs for three years. Some were treated with larvicide in 1958 and others were treated in 1959. The total lamprey take in the weirs was 30,000 in 1959, which was 13,130 less than the previous year.

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Vessel Construction Subsidy Bill Enacted

The President has signed the bill, recently, providing \$7,500,000 in subsidies to aid in the construction of new fishing vessels, at an annual appropriation of \$2,500,000 for three years.

A subsidy shall equal the difference between the cost of building a vessel in the U.S. shipyard and the estimated cost of building in foreign yards. But, in no event shall it exceed one third the cost of construction, in the U.S., excluding the cost of any features incorporated for national defense uses which shall be paid in addition to the subsidy.

Subsidies shall be granted to assist in construction of vessels to be operated in (1) a fishery suffering injury from which escape clause relief has been recommended, but where relief has been denied under Trade Agreements Assistance Act; (2) a fishery injured or threatened by increased imports similar to or directly competitive with the fishery's product not subject to a trade agreement tariff concession; or (3) a fishery injured or threatened by increased imports of a product provided for in the Free List of the Tariff Act of 1930, whether or not the subject of a trade agreement tariff concession.

No application shall be approved unless: (1) plans and specifications are suitable for the fishery in which the craft will operate and for use by the U.S. for national defense or military use; (2) the applicant possesses the ability, experience, resources, etc. to operate and maintain the vessel; (3) the boat will aid the development of U.S. fisheries; (4) the vessel will deliver its full catch to a U. S. port; (5) the applicant will employ on the vessel only citizens or aliens legally living in the U.S.; (6) the vessel will be documented under Laws of the U.S.

A vessel for which a subsidy is paid shall be constructed under provision of the Maritime Administrator, who shall submit plans and specifications to Department of Defense to determine if the vessel will be suitable for conversion for Government use.

In the event the U.S. shall purchase or requisition a subsidized vessel, the owner shall be paid the value thereof; payment not to exceed actual depreciated construction costs (together with depreciated costs of capital improvements) less depreciated amount of subsidy paid incident to construction of vessel, or scrap value of vessel whichever is greater.

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The American Brass Co., Waterbury 20, Conn.

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Brodeur Machine Co., Inc., Pump Div., 62 Wood St., New Bedford, Mass.

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Bendix Aviation Corp., Pacific Div., 475 Fifth Ave., New York 17, N. Y.
Kelvin & Hughes American Corp., Box 1951, Annapolis, Md.

RAADIO TELEPHONES

Apelco Company, 213 E. Grand Ave., South San Francisco, Calif.
Kaar Engineering Corp., 2915 Middlefield Rd., Palo Alto, Calif.
Northern Radio Co., 314 Bell St., Seattle 1, Wash.

RANGES—Galley

"Shipmate"—Shipmate Stove Division, Souderton, Pa.

"Shipmate" and "Webbperfection" — Elisha Webb & Son Co., 136 S. Front St., Philadelphia 6, Pa.

Harry C. Weiskittel Co., Inc., 4901 Pulaski Highway, Baltimore 24, Md.

REDUCTION GEARS

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Paragon Gear Works, Inc., 628 Cushman St., Taunton, Mass.
Snow-Nabsted Gear Corp., Welton St., Hamden, Conn.

Twin Disc Clutch Co., 1341 Racine St., Racine, Wis.

The Walter Machine Co., Inc., 84 Cambridge Ave., Jersey City 7, N. J.

SHIPBUILDERS

Anderson Boat Works, Thomaston, Me.
Blount Marine Corp., Warren, Rhode Island.
Diesel Engine Sales Inc., St. Augustine, Fla.
Harvey F. Gamage, So., Bristol, Maine.
Gladding-Hearn Shipbuilding Corp., 1 Riverside Ave., Somerset, Mass.

Lash Brothers Boat Yard, Friendship, Me.
Newbert & Wallace, Thomaston, Me.
Frank L. Sample & Son, Inc., Boothbay Harbor, Me.

Story Marine Railway, 257 Front St., So. Portland, Me.

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VOLTAGE REGULATORS

Safety Industries, Inc., Box 904, New Haven 4, Conn.

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Hancock Marine, 1567 No. Main St., Fall River, Mass.
Hathaway Machinery Co., Inc., New Bedford, Mass.

New England Trawler Equipment Co., Eastern Ave., Chelsea, Mass.
Stroudsburg Engine Works, 62 North 3rd St., Stroudsburg, Penn.

WIRE ROPE

Hackensack Cable Corp., 110 Orchard St., Hackensack, N. J.

John A. Roebling's Sons Div., Colorado Fuel & Iron Corp., Trenton 2, N. J.

FOREIGN BAILINGS

INDONESIAN SHRIMP are in abundance, but few are being caught. Small and large shrimps are so plentiful in Indonesian waters that experts estimate that more than one million pounds per month could be harvested, but the industry is so underdeveloped that fishermen catch only about twice as much as they can eat themselves.

The U.S. Department of the Interior here reports there are no foreign companies engaged in shrimp fishing in Indonesia, nor are there any facilities either for increasing the catch or for efficient marketing.

SOUTH AMERICAN SALMON are part of a Japanese plan to increase fishing activities. A Japanese Diet member has advanced the idea of seeking a way out of the gradual cutting back of Japan's North Pacific salmon fishery by developing the waters around South America. He has already sounded out the opinions of South American Governments on this scheme.

The plan has advanced to where the Diet member will soon make a trip to South America with a party of Hokkaido legislators to study conditions there. The schedule for the trip is not yet decided, but the idea is to have a member of the staff of the Japanese Fishery Agency accompany the party, and to center the investigation on the rivers of Chile.

A FISH CANNING FACTORYSHIP, the first for the Soviet Union has been launched recently. The *Andrey Zakharov* is 531.4 feet long and displaces 15,300 tons and will be stationed in Vladivostock. It is designed for an annual capacity of 25 million cans, 105 tons of caviar or other fish roe, and 126 tons of fish oil.

SMOKED FISH WITHOUT SMOKE. Scottish researchers find solid particles that make smoke visible take no part in the smoke-curing process, that the invisible smoke vapor cures the fish without discoloring it or polluting the air. Invisible smoke can also be liquefied. Scientists hope that this fluid can be added to a brine-dipping solution to cure without a kiln.

NORWAY TO EXTEND FISHING limit to 12 miles. In a statement to the Norwegian Parliament on May 13, the Foreign Minister deplored the failure of the recent 88 nation conference of the Law of the Sea, at Geneva, to reach agreement on new universal limits for territorial and fishery zones. Under the circumstances, he said, the Government sees no alternative but to make the necessary preparations for extending Norway's fishing zone from 4 to 12 miles.

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Index to Advertisers

Ackerly & Sandiford, Inc.	23	The Linen Thread Co., Inc.	6
The American Brass Co.	4	Lister-Blackstone, Inc.	37
Anderson Boat Works	20	Maine Sardine Council	22
Apelco Company	35	Maine Department of Sea &	
W. A. Augur, Inc.	42	Shore Fisheries	2
Boston & Rockland		Manset Marine Supply Co.	27
Transportation Co.	18	Marine Service & Co., Inc.	27
The Boston Metals Co.	42	Lucian Q. Moffitt, Inc.	4
Burmeister & Wain		New Bedford Cordage Co.	38
American Corp.	41	Newbert & Wallace	23
Chief's Radio Service Co.	25	Northern Radio Co.	37
Columbian Rope Co.	1	F. J. O'Hara & Sons, Inc.	44
Cummins Diesel of New		Oscos Motors Corp.	28
England, Inc.	24	The Palmer Bros. Engine Corp.	16
Isaac Fass, Inc.	42	Payne Insurance Agency	23
Feyler Fish Co., Inc.	27	Portland Fish Co., Inc.	25
First National Bank of Portland	20	C. H. Rich Co.	28
40-Fathom Fisheries, Inc.	16	Sargent, Lord & Co.	43
Harvey F. Gamage, Shipbuilder	25	Seafarer Life Rafts	26
Glass Plastics Corp.	39	H. P. Simpson	16
Goudy & Stevens	27	Snow-Nabstedt Gear Corp.	39
Harbor Lobster & Fish Co., Inc.	28	Southwest Boat Corp.	18
Harbor Supply Oil Co., Inc.	43	Stanley Fisheries	20
The Harris Co.	18	Stinson Canning Co.	23
The Heminway & Bartlett Mfg.		Stonington-Deer Isle Yacht	
Co.	4	Basin Corp.	16
Geerd N. Hendel	28	Watson's Radio Service	20
Holmes Packing Corp.	18	Western Trawl & Supply Co.	42
Leadbetter's	16		

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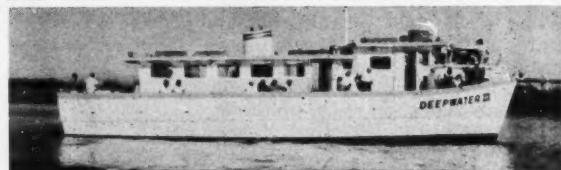
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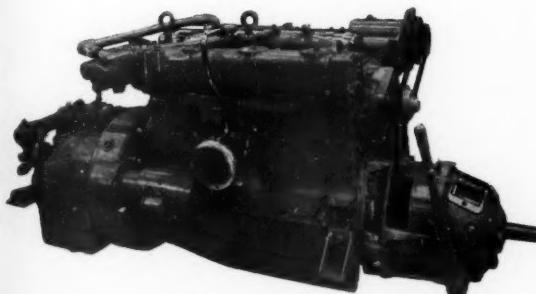
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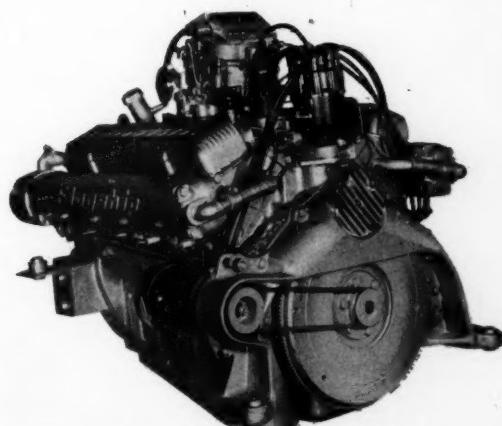
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